THE JOURNAL

of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 145, NO. 6 — CHICAGO, ILLINOIS — FEBRUARY 10, 1951

COPYRIGHT, 1951, BY AMERICAN MEDICAL ASSOCIATION

THE SURGICAL TREATMENT OF PSYCHOMOTOR EPILEPSY

Percival Bailey, M.D.
and
Frederic A. Gibbs, M.D., Chicago

Recent advances in the diagnosis and localization of different types of epileptic seizure have revealed that confusional episodes, in which the patient performs apparently purposeful but coarse and poorly coordinated movements, are usually associated with an epileptic focus in one or both anterior temporal regions.[1] Such attacks have been referred to as psychomotor seizures.[2] They are by no means a rare type of epilepsy. They occur in approximately one third of adult epileptics, either in pure form or in association with convulsive seizures. In the past three years, 1,250 patients have been studied by one of us (F. A. G.). Of these, 95 per cent had an anterior temporal focus of seizure activity. When patients were selected because of the presence of an anterior temporal focus, it was found that 98 per cent had a psychomotor type of seizure clinically. It has been concluded that psychomotor epilepsy is caused by a discharging lesion in the anterior temporal lobe and that anterior temporal lobe epilepsy of this character is the commonest type of focal epilepsy.

The foregoing statements are based almost entirely on electroencephalographic evidence. As in other types of epilepsy the seizure discharge usually shows in the electroencephalogram, not only during the seizure but also between seizures (i. e., subclinical discharges are common). However, and this is of great practical importance, the electroencephalogram reveals seizure discharges in a high percentage of cases only when the tracing is made during natural or induced sleep. If the recording is made in the waking state, in no more than one third of all patients with psychomotor epilepsy is there shown a focus of seizure activity in the anterior temporal lobe.[3]

The term "epileptic equivalent" has been used to cover much of the symptomatology now classified under the heading "psychomotor epilepsy." The latter term is preferred because the disturbance is not an equivalent of epilepsy but a type of epilepsy. "Epileptic automatism" might be a useful synonym, but the term has not been precisely defined and, since all epileptic movements are to some degree automatic, a restrictive definition would be necessary before the term could be made coextensive with psychomotor epilepsy. Uncinate fits and *déjà vu* sensations are found in approximately 10 per cent of patients with psychomotor epilepsy. The terms "trancelike attack" and "confusional episode" are generally descriptive of the chief clinical characteristic of psychomotor attacks, but many varieties of bizarre behavior and distorted, subjective sensation occur in these seizures. A full description of the variety of these clinical manifestations is given elsewhere.[1] In spite of symptoms that might appear heterogeneous, experience shows that the presence of seizures consisting of poorly coordinated but fairly elaborate, apparently purposeful movements, with mental confusion or impairment of consciousness, is a reliable clinical clue to a focus of seizure activity in the anterior temporal lobe. Clinical diagnosis of psychomotor epilepsy is aided if brief seizures with 3 per second blinking of the eyes and myoclonic attacks are not included under the heading "psychomotor epilepsy," for these are likely to be associated with nonfocal 3 per second wave and spike discharges of the petit mal type.[2] Tonic or tonic-clonic convulsions are also excluded, although they are common in persons with the psychomotor seizures. Tonic-clonic seizures are temporally associated with discharges of fast activity of the grand mal type. Attacks characterized by pain, pure rage, visceromotor and vasomotor disturbances are also excluded, because they are usually associated with thalamic or hypothalamic disorder[4] and are not classified as psychomotor seizures.

When psychomotor seizures occur without convulsions, erroneous diagnosis of hysteria or schizo-

From the Departments of Neurology and Neurological Surgery and of Psychiatry, University of Illinois College of Medicine, and the Illinois Neuropsychiatric Institute.

Read before the Section on Nervous and Mental Diseases, at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 30, 1950.

This investigation was supported in part by a research grant from the National Institute of Mental Health of the National Institutes of Health, United States Public Health Service.

1. Gibbs, E. L.; Fuster, B., and Gibbs, F.: Psychomotor Epilepsy, Arch. Neurol. & Psychiat. **60**: 331-339 (Oct.) 1948.
2. Gibbs, F.; Gibbs, E. L., and Lennox, W. G.: Cerebral Dysrhythmias of Epilepsy: Measures for Their Control, Arch. Neurol. & Psychiat. **39**: 298-314 (Feb.) 1938.
3. (*a*) Fuster, B.; Gibbs, E., and Gibbs, F. A.: Pentothal Sleep as an Aid to the Diagnosis and Localization of Seizure Discharges of the Psychomotor Type, Dis. Nerv. System. **9**: 199-202, 1948. (*b*) Gibbs, E. L., and Gibbs, F. A.: Diagnostic and Localizing Value of Electroencephalographic Studies in Sleep, Proc. A. Research Nerv. & Ment. Dis. **26**: 366-376, 1946.
4. Gibbs, F. A., and Gibbs, E. L.: Clinical Correlates of Fourteen-and-Six per Second Positive Spikes. Read before the American League Against Epilepsy, Cincinnati, April 16, 1950.

phrenia is common. Fifty per cent of the patients with psychomotor epilepsy have severe disorders of personality, and of this 50 per cent approximately one half have a history of psychosis.[5] Seizure activity in other cortical areas is not commonly associated with disorder of personality or psychosis. Where a clinical diagnosis of epilepsy with psychosis has been made, the case is likely to be one of psychomotor epilepsy. What is commonly referred to as the "epileptic personality" is rare in persons with pure petit mal or grand mal seizures but common in those who have psychomotor epilepsy, either alone or in combination with grand mal seizures. The combination of psychomotor and petit mal seizures is rare, because the petit mal form of epilepsy is commonest in children and the psychomotor form is commonest in adults.

Maintenance medication with diphenylhydantoin sodium (dilantin®) phenobarbital, mesantoin® (3-methyl 5, 5-phenylethylhydantoin) or phenurone® (alpha-phenylacetourea) (alone or in combination) may protect the patient against the occurrence of psychomotor seizures.[6] However, the medical treatment of psychomotor epilepsy is not as generally successful as that of grand mal or petit mal epilepsy. Experience with phenurone® reveals that, although this substance is more effective than any other in stopping the psychomotor seizures and tends to normalize the electroencephalogram, there is a grave danger that severe personality disturbances, if present, may flare up into frank psychosis when the psychomotor seizures are controlled. Thus, the nonictal psychiatric manifestations that occur in psychomotor epilepsy seem to be antithetic to the psychomotor attacks.[5] These nonictal psychiatric symptoms can take many forms, and they cover almost the entire spectrum of psychiatric symptomatology; schizoid, paranoid and manic depressive pictures are common. When suicidal tendencies are present, they are difficult to cope with because the patient is likely to refuse medication or may poison himself by saving his medicine and taking a large overdose at one time. Psychomotor seizures are interpreted by laymen as attacks of "madness" or spells of "insanity." A person with such attacks is not well tolerated by the community.[1] The patient's own emotional difficulties are often intensified by the hostile reactions of his associates and also by ambivalent protective-rejecting attitudes of parents and siblings. Experience with hundreds of psychomotor epileptics indicates that they commonly create around themselves what might be termed a "social abscess." Psychiatrists often misinterpret the real situation and erroneously reverse the causal linkage by ascribing the patient's personality disorder and even his psychomotor seizures to his emotionally charged environment.

From what has been said it will be evident that in any large group of patients with psychomotor epilepsy there will be many whose need for help is desperate. Since surgical removal of epileptogenic areas in some cases of focal epilepsy can result in great benefit,[7] it seemed reasonable to attempt to extirpate the discharging temporal cortex in a group of patients who had severe clinical manifestations of psychomotor epilepsy and electroencephalographic evidence of seizure discharges in the anterior temporal lobe. At first only patients whose condition seemed entirely hopeless were operated on and only small portions of the cortex were removed, because it was feared that therapeutic results might not be obtained and the patients' symptoms might be aggravated or new symptoms added. However, it was recognized that the operation itself was not hazardous, and plans were made to learn as much as possible from each case. Patients were studied psychologically before and after operation. Electroencephalographic recordings were made before, during and after operation. All operations were done with the patients under thiopental (pentothal®) sodium anesthesia, because it produces a sleeplike state. In this instance nature is unusually helpful, for the same pharmacologic agent that renders the patient oblivious to the surgical procedure activates the epileptic focus.

DATA

We have chosen to report on the first 25 patients on whom we operated; this number simplifies computation of percentages. Of these patients, 13 were male and 12 female, ranging in age from 17 to 45 years. All had had a long trial with many drugs, without relief. The only drug that gave appreciable relief was phenurone,® but it caused such pronounced psychotic manifestations that its use had to be discontinued.

In all these patients the electroencephalogram disclosed the spike seizure activity, previously described, in the anterior temporal region, either unilateral or greatly predominating on one side in 18 cases; in the other seven there was considerable activity in both anterior temporal regions. In addition, in one case there was activity of the petit mal variant type in both frontal regions, and in another, bifrontal seizure activity.

After intubation, the patients were all operated on under thiopental sodium given intravenously. There were no fatalities and no surgical complications except one superficial infection of a wound in the scalp. The exposure was made through a low temporal osteoplastic approach, which disclosed not only the temporal lobe but about 5 cm. of the cortex above the lateral fissure, including both frontal and parietal opercula. The lower part of the central sulcus was well within the exposed area.

The leptomeninges were opaque and thickened in six cases; in two there were adhesions of the arachnoid to the dura mater, and in four the temporal tip was discolored and ragged as after contusion. Definite atrophy of the convolutions was noted twice; in three cases the brain was congested and tense. In one case there was an abnormal tangle of veins, and in one the gyri were flattened, pale and avascular. In the last case an underlying glioma was found.

After exposure of the cortex, electrodes were placed over all parts of the exposed temporal cortex and a few above the lateral fissure, both anterior and posterior to the sulcus, which was identified by electrical stimu-

5. Gibbs, F. A.: Ictal and Non-Ictal Psychiatric Disorders in Temporal Lobe Epilepsy, J. Nerv. & Ment. Dis. 1950, to be published.
6. Gibbs, F. A.; Everet, G. M., and Richards, R. K.: Phenurone in Epilepsy, Dis. Nerv. System **10**: 47-49, 1949.
7. Penfield, W., and Erickson, T. C.: Epilepsy and Cerebral Localization, Springfield, Ill., Charles C Thomas, Publisher, 1941.

V 14
1951

lation. The electrodes were held in place by a Grass cortical electrode-clamp (fig. 1). The activity was recorded while the anesthetic was adjusted to a level that resulted in the maximum amount of seizure activity. In all cases negative spikes were found around the tip of the temporal lobe, usually in all three gyri but sometimes only in the second. In the later operations, a depth electrode was also inserted to determine the

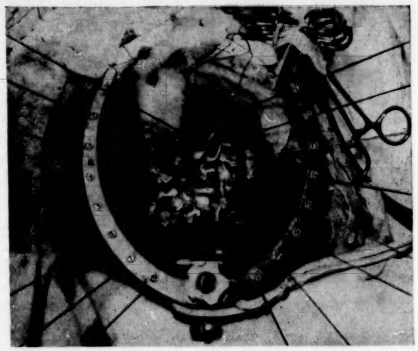


Fig. 1.—Electrodes in position on exposed brain.

origin of the spikes as precisely as possible. Usually the spiking originated superficially, but in some early cases spikes were found also in the depths of the temporal lobe.[4] In some of the cases, when the spiking seemed to be superficial, only the outer gyri were removed; in those cases in which the spiking seemed to be confined to one gyrus, usually the second, only that gyrus was removed. In the first operations, when our equipment was not perfected and we lost much time, records were not made of the activity after an extirpation. In the later operations, such records were always made and the extirpation was extended to remove all the abnormally active cortex whenever possible, but in no instance was an extirpation extended to the insula or to the upper bank of the lateral fissure. The hippocampal gyrus was also carefully avoided.

In eight cases, in addition to the seizure activity in the anterior temporal region, independent focal seizure discharges were found in a frontal area. In two other cases, independent foci of seizure activity were found in the temporal lobe posterior to the level of the central sulcus. If a characteristic distribution of seizure activity is found immediately before operation, an anterior temporal spike focus can be expected at operation. However, in some cases it may not be found, for it may arise from the lateral, mesial, superior, inferior or anterior surface, or from deep structures in the anterior temporal lobe, and it may appear at only certain stages of anesthesia.

During the operation hundreds of seizure discharges were ordinarily recorded. This permitted a detailed spatial analysis of the seizure discharge from electrodes placed over a wide area on the surface of the cortex and from multiple electrodes in the depths of the temporal lobe. Our studies were facilitated by the simultaneous use of two eight-channel electroencephalographs in the operating room.

If viewed by means of closely spaced electrodes, even the most sharply circumscribed focus breaks up into a number of small areas, any one of which can fire independently. Though one or two points may be considered "primary," because they are the most consistent flash points, the one which discharges first and the direction and extent of the spread are in large degree determined by such factors as the depth of anesthesia and the nutritional state of the cortex. Often, independent, widely separated firing points are found. In several instances a lateral anterior temporal focus was found which was much less active than an independent focus in the mesial temporal cortex. From time to time these independent foci fuse, discharge synchronously and produce a higher voltage and a greater spread than when they fire independently.

In all cases the surgical procedure consisted of an extirpation which did not extend more than 1 cm. posterior to the inferior extremity of the central sulcus (fig. 2). This limit was set for various reasons. In the first place, the spikes were not propagated beyond that level, although in two cases independent spikes were found to arise further posteriorly in the temporal lobe. Also, experiments on animals with the strychnine method had convinced us that there were few, if any, connections between the anterior and middle portions of the temporal lobe.[8] In the earlier operations we had transected the lobe at the level of central sulcus (lobotomy), but later this practice was discontinued, since it seemed to serve no useful purpose.

In five cases in which the spikes seemed to be confined superficially to the second temporal gyrus, it alone was removed (unigyrectomy); in three cases, the first and second gyri were removed (bigyrectomy 1+2), and in another three cases, the second and third (bigyrectomy 2 + 3). In six cases, the first, second and third gyri were removed (trigyrectomy 1 + 2 + 3).

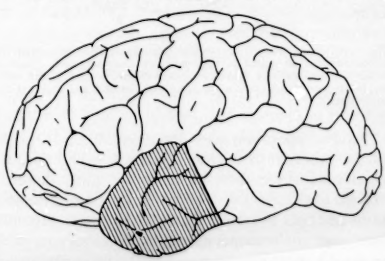


Fig. 2.—Left lateral aspect of the brain showing portion of temporal lobe removed for psychomotor epilepsy.

in two cases a bigyrectomy (1 + 2) plus a lobotomy were made; in two cases a simple lobotomy was made and in six cases a lobectomy. By lobectomy we mean extirpation of the entire tip of the temporal lobe and all the gyri between the lateral fissure and the occipito-

8. Petr, R.; Holden, L. B., and Jirout, J.: The Efferent Intercortical Connections of the Superficial Cortex of the Temporal Lobe (Macaca Mulatta), J. Neuropath. & Exper. Neurol. 8: 100-103, 1949.

phrenia is common. Fifty per cent of the patients with psychomotor epilepsy have severe disorders of personality, and of this 50 per cent approximately one half have a history of psychosis.[5] Seizure activity in other cortical areas is not commonly associated with disorder of personality or psychosis. Where a clinical diagnosis of epilepsy with psychosis has been made, the case is likely to be one of psychomotor epilepsy. What is commonly referred to as the "epileptic personality" is rare in persons with pure petit mal or grand mal seizures but common in those who have psychomotor epilepsy, either alone or in combination with grand mal seizures. The combination of psychomotor and petit mal seizures is rare, because the petit mal form of epilepsy is commonest in children and the psychomotor form is commonest in adults.

Maintenance medication with diphenylhydantoin sodium (dilantin®) phenobarbital, mesantoin® (3-methyl 5, 5-phenylethylhydantoin) or phenurone® (alpha-phenylacetourea) (alone or in combination) may protect the patient against the occurrence of psychomotor seizures.[6] However, the medical treatment of psychomotor epilepsy is not as generally successful as that of grand mal or petit mal epilepsy. Experience with phenurone® reveals that, although this substance is more effective than any other in stopping the psychomotor seizures and tends to normalize the electroencephalogram, there is a grave danger that severe personality disturbances, if present, may flare up into frank psychosis when the psychomotor seizures are controlled. Thus, the nonictal psychiatric manifestations that occur in psychomotor epilepsy seem to be antithetic to the psychomotor attacks.[5] These nonictal psychiatric symptoms can take many forms, and they cover almost the entire spectrum of psychiatric symptomatology; schizoid, paranoid and manic depressive pictures are common. When suicidal tendencies are present, they are difficult to cope with because the patient is likely to refuse medication or may poison himself by saving his medicine and taking a large overdose at one time. Psychomotor seizures are interpreted by laymen as attacks of "madness" or spells of "insanity." A person with such attacks is not well tolerated by the community.[1] The patient's own emotional difficulties are often intensified by the hostile reactions of his associates and also by ambivalent protective-rejecting attitudes of parents and siblings. Experience with hundreds of psychomotor epileptics indicates that they commonly create around themselves what might be termed a "social abscess." Psychiatrists often misinterpret the real situation and erroneously reverse the causal linkage by ascribing the patient's personality disorder and even his psychomotor seizures to his emotionally charged environment.

From what has been said it will be evident that in any large group of patients with psychomotor epilepsy there will be many whose need for help is desperate. Since surgical removal of epileptogenic areas in some cases of focal epilepsy can result in great benefit,[7] it seemed reasonable to attempt to extirpate the discharging temporal cortex in a group of patients who had severe clinical manifestations of psychomotor epilepsy and electroencephalographic evidence of seizure discharges in the anterior temporal lobe. At first only patients whose condition seemed entirely hopeless were operated on and only small portions of the cortex were removed, because it was feared that therapeutic results might not be obtained and the patients' symptoms might be aggravated or new symptoms added. However, it was recognized that the operation itself was not hazardous, and plans were made to learn as much as possible from each case. Patients were studied psychologically before and after operation. Electroencephalographic recordings were made before, during and after operation. All operations were done with the patients under thiopental (pentothal®) sodium anesthesia, because it produces a sleeplike state. In this instance nature is unusually helpful, for the same pharmacologic agent that renders the patient oblivious to the surgical procedure activates the epileptic focus.

DATA

We have chosen to report on the first 25 patients on whom we operated; this number simplifies computation of percentages. Of these patients, 13 were male and 12 female, ranging in age from 17 to 45 years. All had had a long trial with many drugs, without relief. The only drug that gave appreciable relief was phenurone,® but it caused such pronounced psychotic manifestations that its use had to be discontinued.

In all these patients the electroencephalogram disclosed the spike seizure activity, previously described, in the anterior temporal region, either unilateral or greatly predominating on one side in 18 cases; in the other seven there was considerable activity in both anterior temporal regions. In addition, in one case there was activity of the petit mal variant type in both frontal regions, and in another, bifrontal seizure activity.

After intubation, the patients were all operated on under thiopental sodium given intravenously. There were no fatalities and no surgical complications except one superficial infection of a wound in the scalp. The exposure was made through a low temporal osteoplastic approach, which disclosed not only the temporal lobe but about 5 cm. of the cortex above the lateral fissure, including both frontal and parietal opercula. The lower part of the central sulcus was well within the exposed area.

The leptomeninges were opaque and thickened in six cases; in two there were adhesions of the arachnoid to the dura mater, and in four the temporal tip was discolored and ragged as after contusion. Definite atrophy of the convolutions was noted twice; in three cases the brain was congested and tense. In one case there was an abnormal tangle of veins, and in one the gyri were flattened, pale and avascular. In the last case an underlying glioma was found.

After exposure of the cortex, electrodes were placed over all parts of the exposed temporal cortex and a few above the lateral fissure, both anterior and posterior to the sulcus, which was identified by electrical stimu-

5. Gibbs, F. A.: Ictal and Non-Ictal Psychiatric Disorders in Temporal Lobe Epilepsy, J. Nerv. & Ment. Dis. 1950, to be published.
6. Gibbs, F. A.; Everet, G. M., and Richards, R. K.: Phenurone in Epilepsy, Dis. Nerv. System **10**: 47-49, 1949.
7. Penfield, W., and Erickson, T. C.: Epilepsy and Cerebral Localization, Springfield, Ill., Charles C Thomas, Publisher, 1941.

V 14
1951

lation. The electrodes were held in place by a Grass cortical electrode-clamp (fig. 1). The activity was recorded while the anesthetic was adjusted to a level that resulted in the maximum amount of seizure activity. In all cases negative spikes were found around the tip of the temporal lobe, usually in all three gyri but sometimes only in the second. In the later operations, a depth electrode was also inserted to determine the

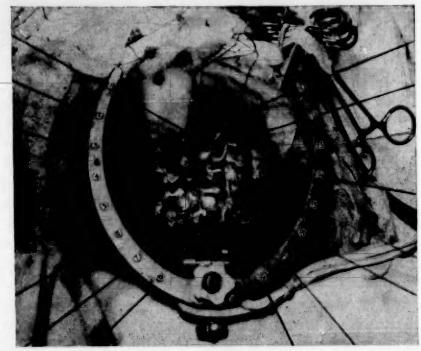


Fig. 1.—Electrodes in position on exposed brain.

origin of the spikes as precisely as possible. Usually the spiking originated superficially, but in some early cases spikes were found also in the depths of the temporal lobe.[4] In some of the cases, when the spiking seemed to be superficial, only the outer gyri were removed; in those cases in which the spiking seemed to be confined to one gyrus, usually the second, only that gyrus was removed. In the first operations, when our equipment was not perfected and we lost much time, records were not made of the activity after an extirpation. In the later operations, such records were always made and the extirpation was extended to remove all the abnormally active cortex whenever possible, but in no instance was an extirpation extended to the insula or to the upper bank of the lateral fissure. The hippocampal gyrus was also carefully avoided.

In eight cases, in addition to the seizure activity in the anterior temporal region, independent focal seizure discharges were found in a frontal area. In two other cases, independent foci of seizure activity were found in the temporal lobe posterior to the level of the central sulcus. If a characteristic distribution of seizure activity is found immediately before operation, an anterior temporal spike focus can be expected at operation. However, in some cases it may not be found, for it may arise from the lateral, mesial, superior, inferior or anterior surface, or from deep structures in the anterior temporal lobe, and it may appear at only certain stages of anesthesia.

During the operation hundreds of seizure discharges were ordinarily recorded. This permitted a detailed spatial analysis of the seizure discharge from electrodes placed over a wide area on the surface of the cortex and from multiple electrodes in the depths of the temporal lobe. Our studies were facilitated by the simultaneous use of two eight-channel electroencephalographs in the operating room.

If viewed by means of closely spaced electrodes, even the most sharply circumscribed focus breaks up into a number of small areas, any one of which can fire independently. Though one or two points may be considered "primary," because they are the most consistent flash points, the one which discharges first and the direction and extent of the spread are in large degree determined by such factors as the depth of anesthesia and the nutritional state of the cortex. Often, independent, widely separated firing points are found. In several instances a lateral anterior temporal focus was found which was much less active than an independent focus in the mesial temporal cortex. From time to time these independent foci fuse, discharge synchronously and produce a higher voltage and a greater spread than when they fire independently.

In all cases the surgical procedure consisted of an extirpation which did not extend more than 1 cm. posterior to the inferior extremity of the central sulcus (fig. 2). This limit was set for various reasons. In the first place, the spikes were not propagated beyond that level, although in two cases independent spikes were found to arise further posteriorly in the temporal lobe. Also, experiments on animals with the strychnine method had convinced us that there were few, if any, connections between the anterior and middle portions of the temporal lobe.[8] In the earlier operations we had transected the lobe at the level of central sulcus (lobotomy), but later this practice was discontinued, since it seemed to serve no useful purpose.

In five cases in which the spikes seemed to be confined superficially to the second temporal gyrus, it alone was removed (unigyrectomy); in three cases, the first and second gyri were removed (bigyrectomy 1+2), and in another three cases, the second and third (bigyrectomy 2 + 3). In six cases, the first, second and third gyri were removed (trigyrectomy 1 + 2 + 3),

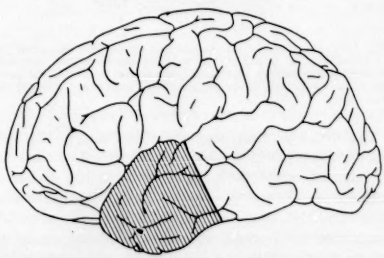


Fig. 2.—Left lateral aspect of the brain showing portion of temporal lobe removed for psychomotor epilepsy.

in two cases a bigyrectomy (1 + 2) plus a lobotomy were made; in two cases a simple lobotomy was made and in six cases a lobectomy. By lobectomy we mean extirpation of the entire tip of the temporal lobe and all the gyri between the lateral fissure and the occipito-

8. Petr, R.; Holden, L. B., and Jirout, J.: The Efferent Intercortical Connections of the Superficial Cortex of the Temporal Lobe (Macaca Mulatta), J. Neuropath. & Exper. Neurol. 8: 100-103, 1949.

temporal sulcus back to the level of the central sulcus (at least); the lateral ventricle was opened and the hippocampus exposed but spared; the insula except that part covered by the frontoparietal operculum was also exposed (fig. 3).

The extirpations were made by uncapping of the second or first and second gyri and then removal of as much tissue as desired by subpial suction. Often the pia-arachnoid was also removed over the tip and base, but this is not necessary. At the beginning of the extirpation, the anterior temporal artery was clipped as it emerged from the lateral fissure. The extirpation then progressed with only minor venous bleeding. When the extirpation was completed, the walls of the cavity were lined with absorbable gelatin sponge (gelfoam®), the cavity was filled with isotonic sodium chloride solution and the dura mater was closed.

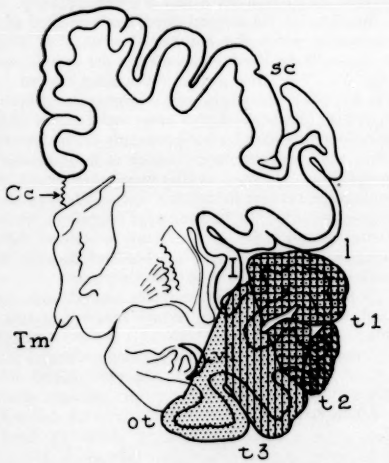


Fig. 3.—Cross section of the cerebral hemisphere showing various types of extirpation. The dotted portion indicates lobectomy area, the dotted and vertical lines indicate trigyrectomy, the dotted, horizontal and vertical lines, bigyrectomy, and the dotted, horizontal, vertical and diagonal lines, unigyrectomy.

The first operation was done on March 12, 1947 and the twenty-fifth on Jan. 19, 1950. The time that has elapsed since these operations varies, therefore, from six to 40 months. There was no operative mortality, and all but one patient recovered promptly. There were no postoperative complications except for one wound infection and occasionally focal convulsions of the opposite side of the face for three or four days, doubtless resulting from operative manipulation. Two patients have subsequently died, one from a head injury during a general convulsion five months after operation and another in status epilepticus four months after operation.

After operation the patients were given phenobarbital routinely, 0.1 Gm. three times a day, and diphenylhydantoin sodium, 0.1 Gm. four times a day; other medicaments were added as indicated. In five cases it was necessary to add mesantoin,® and in two cases phenurone.® In one case it was necessary to discontinue the use of diphenylhydantoin sodium because of hypersensitivity. Seven patients are taking phenobarbital and diphenylhydantoin sodium regularly. All the aforementioned patients are seizure free as long as they continue to take medication and avoid alcohol. Two patients who had drunk alcohol to excess prior to operation continued to go on occasional sprees, which usually resulted in generalized convulsions. During such a convulsion one of the patients sustained a head injury from which he died. Another patient who attempted to do without medication went into status epilepticus and died. Others have tried from time to time to do without medication, with less disastrous results. One patient takes no medication of any kind and has not had an attack since operation. Seven patients continue to have attacks as before operation, in spite of all or any medication; one of these had a simple lobotomy without cortical extirpation.

One unexpected result of these operations has been an increase in the number of generalized convulsions. This should undoubtedly have been foreseen, since it is well known that any trauma to the brain in predisposed persons is liable to result in convulsions. Fortunately, these convulsions are much more readily controlled by drugs than psychomotor attacks. Six patients still have psychomotor seizures, and 12 have only generalized convulsions; one has petit mal seizures, and nine have no spells of any kind. Three have both psychomotor and generalized convulsions, and two are dead.

Microscopic study of the cortex removed at operation has not revealed frequent pathological alterations, but it must be remembered that only the superficial parts of the first and second convolutions were removed for study; the rest of the extirpation was made by suction. Chronic degenerative changes in the cortical neurones were found four times, gliosis twice, a glioma (astrocytoma?) once, traumatic lesions four times and a demyelinizing encephalitis once.

As stated earlier, patients with psychomotor epilepsy are particularly prone to have psychotic manifestations. Our operations usually effected little change in the behavior of the patients. After a few days of apathy following the operation the psychiatric state was usually much as before. Four patients are, according to their estimates and those of all observers, much improved; they are much more calm, placid and cooperative. Three patients, however, were for a time so garrulous and hypermotile after operation that they were difficult to manage. Two of these had been previously institutionalized because of such symptoms and had to be reinstitutionalized. The third had not been institutionalized and became psychiatrically normal four months after operation.

One strange result has been observed by both patients and relatives: the psychotic manifestations that persist after operation are improved by a generalized convulsion. The patient who has not had an attack of any kind since operation and takes no medication

V 14
1951

becomes so garrulous and hypermotile at times that he must be given a convulsion by electric shock; this promptly improves his behavior. Another patient, who has no psychomotor spells, becomes catatonic and resistive when her generalized convulsions are suppressed by phenobarbital. Her parents deliberately permit her to have a generalized convulsion from time to time and, in this way, keep her in a condition that enables her to care for herself and help around the home.

In general, there was a positive relation between the therapeutic result and the degree to which the seizure activity in the anterior temporal lobe was reduced as a result of the temporal lobectomy (table).

Relation Between Reduction of Anterior Temporal Seizure Discharges and Clinical Therapeutic Result

Anterior Temporal Spikes (Postoperative EEG)	Therapeutic Effect on Psychomotor Seizures			
	Great	Moderate	Slight	None
Absent or greatly reduced	5	4	0	0
Moderately reduced	0	3	4	0
Slightly reduced	0	0	2	1
Not changed	0	0	1	5
Total	5	7	7	6

COMMENT

We are aware that it is too early to publish this report. We have been forced to do so by the persistent demands for information concerning these operations and by the publication of premature reports by others.[9] Statistics to be valid must deal with comparable data, and ours are extremely varied. It is impossible, therefore, for us to draw valid conclusions; we can give only impressions. Moreover, not enough time has elapsed since operation, even since the first operation; studies of large series of epileptic patients have shown that as many as a third of the patients begin to have attacks more than five years after an injury to the brain. No report of results from a series of operations on epileptic patients, therefore, can begin to approach accuracy unless at least five years have elapsed since all operations.[10] All statements concerning this series of operations for psychomotor epilepsy must be taken as purely tentative.

In the choice of patients, we believe that only those should be taken whose disturbance either is confined to one lobe or predominates in one lobe,[11] unless one is prepared to make a bilateral operation. Moreover, one should be prepared, in case there is epileptic activity elsewhere in the brain, to have this activity much more evident; activity appeared in the frontal lobe of one of our patients that is not to be seen in several records made before operation.

The hypothesis that the psychomotor type of seizure discharge is not primarily temporal in origin,[2] but comes instead from the insula, the thalamus or another deep area, is not supported by our experience. Recordings from the insula gave no evidence that the discharge originated in that region. The present evidence suggests that, although in some cases multiple, widely separate seizure foci are found when a focus in the anterior temporal lobe is clearly demonstrated electroencephalographically, it is possible to remove it in its entirety by operation on the temporal lobe.

The tendency for nonictal psychiatric symptoms to flare up when the psychomotor seizures are reduced is a common complication in the medical treatment of psychomotor epilepsy.[6] The surgical relief of the psychomotor seizures seems to be less likely to produce a flare-up of psychiatric disorder than the medical treatment. It is assumed that the psychiatric and epileptic symptomatology are physiologically antagonistic but that both are due to disorders in the temporal lobe. If this is true, it seems reasonable to suppose that medical treatment leaves in the temporal lobe the disorder which produced the psychiatric symptoms and this, when no longer antagonized by the epileptic disorder, is free to manifest the full nonictal psychiatric symptom complex. Surgical attack on the disordered temporal lobe, on the other hand, when successful, removes the epileptic focus, but it may also remove some of the neurons that initiate or mediate the nonictal psychiatric symptoms.

When looked at in detail from electrodes on the exposed surface of the brain, an epileptic focus usually is found to be not a point or an area but a constellation of points or a number of areas. A focus must be thought of in much the same terms as a contusion of the brain. When one region of contusion is found, there may be one point at which damage is maximal but there may be other unobserved, and possibly unobservable, contused regions. The demonstration of one epileptic focus itself may be divided into one or more regions in which disorder is maximal, and there are usually peripheral zones in which it is minimal. As has been stated, epilepsy can be regarded as an irritative reaction to injury, but looked at more broadly, it is a reaction in which the normal temporal and spatial checks on neuronal metabolism and function are deflected; it is a form of a functional gigantism, a tumor of function.[5] Even though the focus may look histologically normal, the electroencephalographic evidence indicates that it is diseased. The consequences of such disease are at times as serious as those of a histologically evident disease, for example, a true neoplasm. The problem faced by the neurosurgeon in trying to eradicate focal seizure activity is comparable to that of trying to eradicate a neoplasm.

We believe that a lobectomy should always be done. We have observed no ill effects from removal of the entire temporal lobe back to the level of the central sulcus if the island and hippocampal gyrus be spared. We do not know what would happen if they were removed, but we fear some such symptoms as were provoked in monkeys,[12] especially if a bilateral extir-

9. Morris, A. A.: The Surgical Treatment of Psychomotor Epilepsy, M. Ann. District of Columbia **19**: 121-131, 1950.

10. Bailey, P.: The Therapeutic Results of Cortical Extirpations, Brain and Nerve, Tokyo, 1950, to be published.

11. Belinson, L.: Electroencephalographic Characteristics in Institutionalized Epileptics, Am. J. Ment. Deficiency **52**: 9-15, 1947.

12. Klüver, H., and Bucy, P. C.: Preliminary Analysis of Functions of the Temporal Lobes in Monkeys, Arch. Neurol. & Psychiat. **42**: 979-1000 (Dec.) 1939.

pation is contemplated. We have observed no aphasic disturbance when the left temporal pole has been removed, in particular no impairment of musical ability; we have not, however, operated on any person of superior musical talent and training.

We have obtained good results from unigyrectomy in some cases and not in others. Subsequent electroencephalographic examinations in cases with poor results have shown psychomotor activity still present. We believe, therefore, that the examination on the exposed brain cannot be trusted to reveal the total extent of the disturbance in every case. Walker [13] has also found, after extirpation of an epileptically active focus, that the activity appeared elsewhere. For this reason, we believe a radical lobectomy is preferable in every case, and we now operate on this principle. In our late cases the results are very good to date, but not enough time has elapsed for us to be sure; at any rate, the postoperative electroencephalograms have shown absence of psychomotor seizure activity.

If we tried to estimate our results to date, we would say that one patient is cured so far, in that, although taking no medication, he has had no attacks of any kind; in 11 cases the result might be considered good, since the patients are seizure free with medication, whereas formerly their attacks could not be controlled by medication; in four cases the operation has been very recent, but the patients promise well to date; in nine cases little or no improvement has resulted. Of the unimproved patients, two had only lobotomy incisions, with a biopsy in one of them. Every patient that was subjected to lobectomy was improved. The patient who has no spells, even with no medication, had a bilateral lobectomy.

It is obvious that no one can check our estimates of these cases without observing the patients and having the entire records at his disposal; the data that we have been able to give here are entirely inadequate for this purpose.

SUMMARY

A series of 25 patients are discussed whose temporal lobes were operated on in an attempt to control or eradicate psychomotor epilepsy. Recordings from the surface and depths of the exposed brain indicate that the psychomotor type of focus actually originates in the temporal lobe and can be removed by temporal lobe extirpations. The immediate therapeutic result is in general proportional to the extent to which seizure activity is reduced or eliminated. A radical extirpation seems desirable, because even in the most favorable circumstances the focus is not a sharply defined point but is an area, or possibly several areas, in which multiple points are prone to discharge independently. The size and exact shape of the focus depend on the conditions under which it is investigated. Some cases are complicated by the presence of independent foci in both temporal lobes. Although the results to date are encouraging, insufficient time has elapsed to permit a definitive evaluation of the operative treatment; this is merely a report of progress.

13. Walker, A. E.: Posttraumatic Epilepsy, Springfield, Ill., Charles C Thomas, Publisher, 1949.

ABSTRACT OF DISCUSSION

DR. HUGH W. GAROL, San Francisco: The diagnosis of psychomotor epilepsy has been assisted by the electroencephalogram, and now, with discrete localization, a more promising therapeutic approach is offered. This is an outstanding contribution and a tribute to the combined investigational efforts of the electroencephalographer and the neurological surgeon. The neuroanatomy of the temporal lobe presents many unknown entities. There are association bundles between areas 46 and 38 and to the orbital surface of the frontal lobe, but definitive knowledge is lacking. We know even less about the corticobulbar projections. The recent disclosures show this region is not as "silent" as we once believed. The connections between the frontal and the temporal lobes are great, but what do they mean in terms of function? On the basis of neurophysiology, we note the temporal lobe is concerned with the primary senses. Olfaction was formerly considered the dominant element, but as clinical studies progressed the sense of hearing was found to project here. Studies of pathological states, ablations and electrical stimulation have disclosed the importance of the temporal lobe to the sense of sight. There may be some doubt about the importance of Meyer's loop, as Dr. Bailey was unable to demonstrate any visual field defects following resections on these patients. The sense of taste is likewise involved with the uncinate gyrus. The most available temporal lobe for investigational purposes is that of the carnivora. Ablation studies have been performed on them, but more definitive psychophysiological studies should be undertaken in such preparations. Clinically we know of the uncinate seizures and the bizarre behavior patterns. In substance, we are discussing an area of the brain concerned with many known functions and a host of unknowns. A destructive type of procedure is being performed in the hope of giving the patient a lesser defect than he had previously. Dr. Bailey has demonstrated this hope has been sound. However, as he states, with restricted enthusiasm, the procedure is not ready for general adoption. Prefrontal lobotomy, following the original work of Moniz, has produced changes in emotions. The cingulate gyrus, the medial aspect of the temporal lobe and the orbital surface of the frontal lobe appear to be concerned with emotions. It is interesting to learn that the tip of the temporal lobe is involved with some emotional imbalance in the form of automatic behavior and that surgical intervention now offers some hope. A. Earl Walker has removed the amygdaloid nucleus on one or both sides in several patients and will report on them in the future. Pribram's work, based on the method of physiological neuronography of Dusser de Barenne, indicates the amygdaloid nucleus is important in relation to this entire region. I should like to ask Dr. Bailey what electroencephalographic and personality changes occur in persons who have had subtemporal decompression? Have any vascular lesions been disclosed over the tip of the temporal lobe? Have any of these operations been done on children?

DR. BAILEY: Most of what we know about the connections of the temporal lobe has been discovered by Dr. Garol with the use of the strychnine method in monkeys. It was decided, in these cases, not to carry the excision beyond the lower end of the central sulcus, because that is the boundary beyond which, it has been discovered by this method, connections between the tip of the temporal lobe and the rest of the temporal lobe either do not exist or are slight. We also did not wish to get into the aphasic zone. Medially we did not go, as I said, beyond the lateral ventricle and hippocampus, so I have never made any effort to disconnect any portion from the frontal lobe; I do not know what that result might be. I do not know of any electroencephalographic examinations of the temporal lobe after subtemporal decompressions, which are usually done in cases of high intracranial pressure as a means of giving relief. Those patients usually do not live very long afterward. It might be interesting to see what the results would be. All these patients, with one exception, were middle aged with about equal distribution between males and females. There was one girl of 15; the rest of them were about 30 or 40 years of age.

V 14
1951

MOVABLE POSTENUCLEATION IMPLANTS

COMPLICATIONS AND THEIR SOLUTION

William Stone Jr., M.D., Boston

During the past six years numerous types of incompletely epithelized postenucleation implants have been developed. This was begun by Ruedemann [1] and was continued by Cutler [2] and others.[3] Reviews of this development have been presented.[4] The movement of most of these implants is practically complete and is far superior to the older glass, gold or bone ball implants, wherein the movement of the stump was transmitted to the shell by means of friction between the conjunctiva and the outer scleral shell. This union usually resulted in a great deal of slippage between the two elements, and therefore only minimal movement at best, while the movement of the partially covered implants is transmitted directly to the overlying shell by means of a peg or as the result of use of a one piece implant. Because the psychological advantages of complete or nearly complete motility of an ocular prosthesis especially in young persons, appeared to be great, the integrated implant was welcomed. Nevertheless, the advisability of implanting an incompletely covered foreign body was considered with misgivings. The two greatest fears were of extrusion and of infection behind the implant. Many of the original types of exposed implants did extrude. But it was then found that tantalum meshwork provided for a firm and dense growth of tissue into its interstices and that the conjunctiva completely sealed itself off at the edge. At this time the great majority of the implants remained in place, whereas a higher proportion of the older type glass balls were continually shifting and being expelled from the muscle cone underneath the conjunctiva.

In this series of 125 cases the predicted complications did not occur. There have been no extrusions and no infections behind the implant. But with the new procedure several complications did arise. These complications were discomforting to the patient, even though he had complete motility and a cosmetically acceptable prosthesis. These complications and their solution are presented in this paper.

TYPES OF IMPLANTS USED IN THIS SERIES

As of May 1, 1950 the first implant in this series had been in place in a human socket for a period of 36 months. It consisted of a plastic ball (methylmethacrylate) with three fourths of its surface surrounded by a meshwork of double thickness tantalum mesh. The four rectus muscles were sutured to the mesh with braided 5-0 tantalum suture. The implant was shaped in the approximate form of a pear. Since then modifications have been made in the shape of the implant (fig. 1*A*) and the method of attachment (fig. 1*B*) and in surgical details. These changes aided in increasing the motility and the ease of insertion of the implant and in maintaining the implant in a central position.

COMPLICATIONS

Four main complications have been encountered in integrated postenucleation implants. These are (1) secretion, (2) granulation tissue or polyps at the conjunctival edge, (3) exposure of meshwork and (4) operative difficulties with secondary or delayed implants. These complications will be discussed in order. Of the 125 cases in which implants were done at the Massachusetts Eye and Ear Infirmary in the first 36-month period it has been possible to follow 112, at intervals of about four months, to the present time. The report at this time concerns these cases.

1. *Secretion.*—In 41 of the 112 cases followed there was moderate to severe secretion, which necessitated wiping of discharge from the eye on an average of eight to 10 times a day. Fifteen other sockets showed slight secretion. The discharges from 39 sockets were cultured (table 1). All that were cultured in meat infusion tubes (with the exception of three specimens from those already receiving antibiotic treatment) showed pathogenic organisms. I was much less successful in culturing the organisms on agar plates or synthetic mediums. The pathogenic organisms most consistently found were coagulase-positive hemolytic Staphylococcus aureus; next, Escherichia coli, and then a scattering of pneumococci and streptococci (table 1).

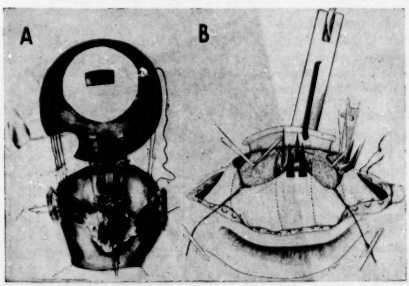


Fig. 1.—*A*, pear-shaped implant previously used. Muscles sutured to meshwork with tantalum wire; *B*, prong type lateral edge implant. Muscles attached to meshwork with tantalum prongs.

Topical applications with high concentrations of the suitable antibiotic were used to counteract this secretion. Penicillin ointment and drops were the most efficient agents against gram-positive organisms and seemed superior to the sulfonamide drugs. They were used as penicillin ointment, 2,000 units per gram, at bedtime and penicillin drops, 6,000 units per cubic centimeter, every two hours during the day for seven days with the shell out. Against gram-negative organisms streptomycin was most effective, and it was found expedient to use large concentrations of the drug in the beginning so that the bacteria would not become refractory to it. Ointment containing 250 mg. of streptomycin per gram was used at

Read before the Section on Ophthalmology at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 29, 1950.

1. Ruedemann, A. D.: Plastic Eye Implant, Tr. Am. Ophth. Soc. **43**: 304, 1945; Am. J. Ophth. **29**: 947, 1946.

2. Cutler, N. L.: A New Type Orbital Implant, Am. J. Ophth. **30**: 1303, 1947; A New Type of Basket Implant for Use After Enucleation, Surg., Gynec. & Obst. **84**: 792, 1947.

3. (*a*) O'Brien, C. S.; Allen, J. H., and Allen, L.: Evisceration with Intrascleral Implant (A New Technique), Tr. Am. Ophth. Soc. **44**: 296, 1946. Hughes, W. L.: Further Experiences with Integrated Eyes and Vitallium Implants, ibid. **45**: 162, 1947. (*b*) Guyton, J. S.: Enucleation and Allied Procedures: A Review and Description of a New Operation, ibid. **46**: 472, 1948.

4. Durham, D. G.: The New Ocular Implants, Am. J. Ophth. **32**: 79, 1949. Guyton.[3b]

night; drops containing 250 to 500 mg. per cubic centimeter were used every two hours during the day. The results with this antibiotic therapy were consistently good, and the secretion cleared in nearly every case within one week. It was necessary, however, for the patient to continue a hygienic routine indefinitely in order to maintain a bacteria-free socket. If this were not done, the secretion usually recurred after various time intervals.

These cases were consistent in that the secretion was in the nature of a superficial chronic conjunctivitis. In many cases the conjunctiva appeared healthy and pink even though the degree of secretion was rather severe. It had been noted that in many sockets with a classic glass or gold ball implant there was a moderate to severe discharge. It was then hypothesized that, because there was usually a dead space behind the shell and because the physical mechanisms for draining the conjunctival sac were probably not operating efficiently, lacrimal and mucous secretion might be pooling behind the anterior portion of the shell and acting as a culture medium for the growth of bacteria introduced as the result of uncleanly habits. This was emphasized by the number of cases exhibiting Esch. coli in the cultures.

A routine for the hygienic care of the socket was therefore established. In the patients who had previously exhibited discharge the routine was started after the infection had been cleared with the suitable antibiotic, and in those with new

TABLE 1.—*Bacteria Cultured over a Period of Thirty-Six Months from Sockets of Patients with Secretion*

Organism Found *	No. of Cases with Organism
Staph. aureus:	
Coag. +, hem. +	18
Coag. −, hem. +	1
Not reported	7
Esch. coli	9
Pneumococcus	3
Bet-hem. strep.	2
Alpha-hem. strep.	1
Strep. faecalis	1
Influenza B.	1
No growth	3
Mixed cultures of above (two organisms)	5
Mixed cultures of above (three organisms)	1
Total number of cultures taken, 39	

* Diphtheroids and Staph. albus not reported.

implants it was begun four days postoperatively and continued indefinitely. The most satisfactory routine which I have found is the one which I give to all my patients in printed form (table 2). To keep the socket clean and free of bacteria at night, use of a ¼ inch (0.64 cm.) ribbon of penicillin ointment is sufficient. Several other antibiotics are being tried at present to assay their value.

Although two to three years ago the percentage of allergic reactions to penicillin locally dispensed in the socket was high, only three of 104 patients given penicillin, in this way whether as ointment or drops, showed an allergic reaction in this series. Keefer [5] believes that this may be due to removal of the impurities from the medicament.

In the morning the patient uses a sodium chloride solution prepared by himself and irrigates his socket by placing the nozzle of a 1 ounce (30 cc.) ear-ulcer syringe between the inner margin of the shell and the inner canthus of the eye and irrigates with five bulbfuls of sodium chloride solution (fig. 2). For thoroughness, this is best done with the patient lying down and using a large bath towel or emesis basin to catch the fluids. Five dropperfuls of aqueous benzalkonium (zephiran®) chloride solution 1: 2,000 are then used to soften any concretions and to allow the shell to be polished with a piece of cleansing tissue dipped in the disinfectant. This prevents irritation of the upper lid as it slides over the shell.

As much of the conjunctivitis is caused by Esch. coli, the patient is cautioned to scrub his hands and fingers well before beginning his morning socket lavage. It is also believed that the eye should never be wiped with a handkerchief or tissue which has been previously exposed in a pocket or purse. It is therefore advised that paper tissue carried in a plastic or other container be used for this purpose. Cleansing tissue in a pocket-sized package has seemed most suitable.

This routine is not more difficult than brushing teeth twice a day, and it has been extremely effective. The patients understand the procedure and follow it with only a little monitoring. As a result, sockets of 33 of the 34 persons who had moderate to severe secretion prior to 12 months ago have been cleared and have remained secretion free to the present. It is believed that removal of one implant because of persistent discharge was done prematurely.

In the past 12 months, 52 implants have been performed and each patient has been placed on the aforenoted socket hygiene routine or a modification of it. Seven cases of transient moderate to severe secretion have occurred. Either this was associated with head colds or there had been a preexisting

TABLE 2.—*Directions for Hygienic Care of Eye Socket**

A. First two weeks after leaving hospital:
   1. Put penicillin or any other antibiotic ointment in the eye at bedtime every night (approximately 1 inch ribbon of ointment).
   2. Flush the socket with 10 dropperfuls (not 10 drops) of benzalkonium (zephiran †) chloride 1:3,000 aqueous solution on arising in morning. Then press eye back and forth several times with piece of cleansing tissue to get matter from back of shell.
   3. Polish front surface of shell with piece of cleansing tissue dipped in the solution.

B. After two weeks:
   1. Place ¼ inch ribbon of penicillin or any other antibiotic ointment in eye at night, not 1 inch as previously.
   2. Flush eye each morning with five syringefuls of salt solution. (Salt solution: ¼ teaspoon salt to 1 quart boiled water.) A 1 ounce, soft rubber, ear-ulcer syringe is to be used. Place the nozzle of the syringe at the inner corner of eye between the edge of the shell and the inner angle of the eye. Lie down when flushing the socket and hold a large bath towel at the side of the head to catch the solution. Squeeze the bulb forcefully so that the entire back of shell will be washed as well as the front.
   3. Then flush the eye with five dropperfuls of aqueous benzalkonium chloride solution 1:2,000.
   4. Polish front surface of the shell with a piece of cleansing tissue dipped in the solution.
   5. Continue the above procedure indefinitely. Make this a routine of your daily living just as brushing your teeth. This is very important.

C. General instructions:
   1. Scrub hands well with soap and water before beginning morning routine.
   2. Always carry with you a pocket-size package of cleansing tissue. (Never carry loose tissue in pocket or bag. Always carry it in its little packet.) Never touch the eye with anything but cleansing tissue and never with your bare fingers.
   3. Do not get your head wet when you are swimming.
   4. Have a permanent shell fitted at the end of five weeks.
   5. Never remove the shell from socket.

* These directions for hygienic care of the socket are given to patients with implants as they leave the hospital.
† Registered trade name.

secretion in sockets with secondary implants. These have been cleared completely with antibiotic routine or change in hygiene of the socket. There are no sockets exhibiting secretion at the present time in the series of 112 followed cases.

2. *Formation of Granulation Tissue or Polyps.*—In 13 of 112 cases followed, polypoid formations appeared at the conjunctival edge. On microscopic section this was found to be granulation tissue. These growths occurred in only a small number of cases, and they manifested themselves early. It was believed that they resulted from interposition of connective tissue or from fat tissue underneath the conjunctival edge, also from inadvertently picking up Tenon's capsule instead of conjunctiva when suturing the conjunctival edge to the meshwork. In one case (patient W. R.), a finely demarcated edge of conjunctiva was apparent on the polypoid mass and the mass had the gross appearance of Tenon's capsule. When this was dissected, it was found to be continuous with the underlying Tenon's capsule.

In suturing the conjunctival edge at the end of the primary operation it is often difficult, if not impossible, to differentiate the edge of the conjunctiva from the adjacent Tenon's cap-

5. Keefer, C.: Personal communication to the author.

V 14
1951

sule. Thus, it is easy to inadvertently suture Tenon's capsule instead of the conjunctiva. This is overcome by purse-string suture of the conjunctiva immediately after the peritomy of the conjunctiva is performed at the beginning of the enucleation and before the muscles are isolated and Tenon's capsule incised. Care is then taken at the end of the procedure when the implant is in place and before the pursestring is tied, to push Tenon's capsule, connective tissue and fat tissue back from under the conjunctival edge. This procedure has been employed during the past 15 months in 67 cases; as a result, no polyps have been noted, except in one secondary implant where the conjunctival edge had not been cleaned completely.

Procedure Employed When Polyps or Granulations Occurred:

The polyps or granulation tissue encountered in the above cases were held in place by an exceedingly tenuous base. If they did not push the shell forward nothing was done about them. If they did cause disturbance (nine cases), they were removed and their bases were cauterized, or they were dissected out from under the conjunctival edge and the conjunctiva was resutured to the mesh work. This is a difficult procedure to perform correctly, for great care must be taken to avoid loss of the conjunctiva and to débride well the conjunctiva edge. In a number of cases cautery had to be repeated several times. In one case (patient W. R.) the old type implant was removed, the granulation tissue was resected up to the fornix and a lateral edge implant placed. There has been no return of the tissue over a period of six months to the time of writing.

3. *Exposure of Meshwork.*—The third complication encountered was that of exposure of meshwork. Of the 112 cases followed, 19 showed exposure varying from 1 to 8 mm. If

Fig. 2.—Manner in which patient irrigates socket each morning with a 1 ounce ear-ulcer syringe with five syringefuls of sodium chloride solution. The patient is in the supine position.

the exposure did not impinge on a muscle insertion it was of no importance, for the conjunctiva adhered firmly to the meshwork where it fell and sealed itself completely. If the exposure impinged on a muscle insertion the implant had to be revised. This revision had to be accomplished in a specific manner, invariably completely freeing the conjunctiva from the underlying tissue. When this was not done, the revision was unsuccessful.

It is now believed that the primary reason for exposure of meshwork lies in the faulty fabrication of the meshwork on the plastic. If the meshwork is too closely applied to the plastic or if the interstices of the meshwork are pulled too closely together, the tissues will not grow into it, for they are met by a solid, flat surface, rather than a sievelike one. Therefore, because to carry out this production properly involves, at present, careful handwork on each implant and very close inspection of each implant, the manufacturers have agreed to suspend temporarily the mass production of the implants until a satisfactory standard method of production and a procedure for rigorous inspection of each implant are evolved.

Difficulties of Performing Secondary or Delayed Implants.—The insertion of an implant in a socket from which the eye was removed at some time previously appears at first impression to be easy, for the eye has already been removed. But this is far from the truth. In my opinion to do a secondary implant operation correctly is one of the most difficult and tedious of ophthalmic procedures.

Fifty-eight secondary procedures have been done in this series. The first 10 to 12 implants resulted in minimal motility, if any. In four cases a ptosis developed and in three cases lagophthalmos. In four cases referred by other physicians the implant showed exceedingly bizarre movement. In one the implant moved downward when the normal eye moved laterally and the implant came forward out of the socket when the normal eye moved medially. In two others,

Fig. 3.—Result of secondary implant when muscles are incompletely dissected and attached in incorrect positions and when implant is of incorrect size for conditions in socket. When the normal left eye moved laterally, the implant rotated upward. The implant is decidedly exophthalmic. The cosmetic result is very poor.

the implant retracted into the socket with movement of the normal eye in one direction and then became exophthalmic with movement of the normal eye in the other direction. The fourth implant protruded about 10 mm. from the socket, and the movement was completely disorganized (fig. 3). To none of these could a suitable shell be fitted, and in all these instances the cosmetic result was much worse than with the original prosthesis.

Another complication was granulation at the conjunctival edge. This occurred when the conjunctival edge was not cleared completely of underlying connective tissue. Another complication was too shallow an inferior or superior cul-de-sac, which resulted in a shell that was impossible to completely fit. Exposure of meshwork was avoided by dissecting the conjunctiva completely as a thin layer from its underlying tissues to the fornices in all directions.

It was necessary to find and dissect completely each of the four rectus muscles as well as the two obliques because, in the majority of cases, any ball that had been placed, whether it was glass or gold, had been partially or completely extruded from the muscle cone and the muscles were bunched and cicatrized in one quadrant or another (fig. 4). It is for this reason that a movable implant cannot be reinserted in the sac left on the removal of the glass or gold sphere. If this is done the bizarre movements, noted previously, occur. This

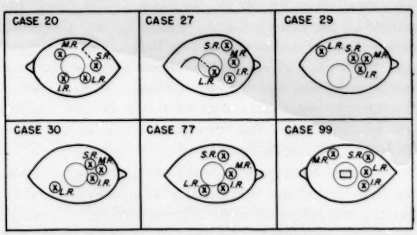


Fig. 4.—Positions of muscles in six unselected sockets previous to performing secondary implant operation. Case 99 is a tertiary implant. The secondary implant had been placed with the muscles attached as above and produced extremely bizarre movement.

can also occasion a shifting of the implant from side to side in the socket rather than a rotation. An unsatisfactory cosmetic result is produced in these cases.

Sizes and Shapes of Secondary Implants: Although for the primary implant one standard size and shape can be used well

with any socket, in children or adults, a range of approximately 15 sizes and shapes is required for the secondary procedure. These varying shapes are necessary because one encounters varying forms and sizes of sockets as the result of varying amounts of cicatricial tissue, different ways of primary suturing of muscles and different types of original implants. The primary standard implant is not suitable for the secondary procedure.

It is thought best to disrupt the socket as little as possible, especially at the posterior pole, because of the muscle innervation. In this series, even with a large assortment of sizes, two secondary implants had to be replaced because of use of the wrong size. In three referred cases I encountered the same difficulty.

My average operative time for this procedure is approximately 3½ to 4½ hours, even though experience has been gained with 58 cases. The operation requires painstaking dissection of the muscles and conjunctiva. The muscles cannot be seen in most cases but must be identified by feel. Although the procedure is difficult, when it is done correctly the results are gratifying. Although the first 10 to 12 secondary implants in this series were not successful, the last 45 have exhibited movement nearly as good as that obtained with the primary procedure, namely, 80 to 100 per cent, as compared with the normal eye. One secondary implant was done 35 years after removal of the eye. The result was excellent.

SUMMARY AND CONCLUSION

One hundred and twenty-five implants have been placed in this series over a period of 36 months. None has extruded, and there have been no infections behind the implants. It would appear that the problem of the incompletely epithelized foreign body may not be as surgically unsound as was thought several years ago. The inert character of the substances implanted, the ability of the conjunctiva to adhere to the meshwork and seal the wound at the neck of the implant (fig. 5 *A*) and the ability of connective tissue to grow into the meshwork (thus making the implant an integral part of the surrounding tissues, fig. 5 *B*) may in part explain this phenomenon. An analogue of this, as discussed by Verhoeff,[6] can be found in the tooth or nail.

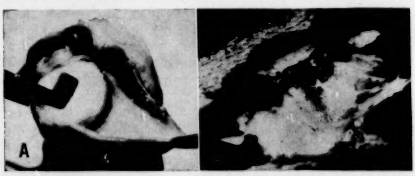


Fig. 5.—Implants which had been placed in rabbit sockets and were removed at end of three months: *A*, conjunctival growth to the meshwork; *B*, connective tissue growth into the meshwork. Neither conjunctiva nor connective tissue could be pulled from the meshwork but had to be separated by sharp dissection.

The sockets of patients with implants performed at the beginning of this study appear as healthy, at present, as they did several months after operation. Although 36 months seems an adequate test period, a prediction as to what will happen in 10 years cannot be made. It can be said, nevertheless, that the results as concerns extrusion compare favorably with those with a glass or gold ball; also, the motility is practically complete with the implant and minimal with the glass or gold ball.

With any new procedure complications arise. It is believed that the hygiene of the socket routine has controlled the problem of secretion. This has been under investigation for only 12 months, and much longer study will be necessary to prove the efficiency of this and related technics.

It is felt that the problem of exposure of meshwork will be alleviated by the correct application of the meshwork to the plastic in the manufacture of the implant.

Polypoid formation or granulation tissue has been eliminated by insuring that no tissues are interposed between the conjunctival edge and the meshwork, namely, by an improvement in operative technic.

The intricacies inherent in doing a secondary implant can only be learned by hard work and many failures. An ophthalmologist should not attempt a secondary implant as an isolated procedure. If he contemplates training himself to do them, he must be willing to do and have the facilities to do 15 to 20 secondary implants over a period of four to five months so that his failures will not have been in vain, and he must be willing to devote three to four hours to every operation. If this is not done, the results for both surgeon and patient may be exceedingly disappointing.

At present a survey is being conducted of all the implants of this variety which have been placed in the past three years. It is estimated that they total about 1,500. Suggestions will be made and different methods utilized in the elimination of the types of complications observed in these cases. A report will be forthcoming on these results.

ABSTRACT OF DISCUSSION

Dr. A. D. Ruedemann, Detroit: There have been serious handicaps in the field of pseudoplastosurgery, but with the advent of the less irritating plastics and metals the possibility of open implantation became a factor in replacement surgery. A basic factor in this surgical operation is the position of the eye that is being removed or the eye that is still remaining. There is a known anterior-posterior location of the eye for the individual patient. This factor cannot be ignored, as the sulcus produced in the upper lid is due to position and volume.

The volume of the eyeball removed must be in the main replaced. This is approximately one fifth of the total content of the orbit; however, in some instances it is greater. In the case of an adult it is well to know when the eye was removed. The bony orbit does not enlarge materially in the absence of the globe. These sockets require a smaller globe. The material used is of prime importance in retention of the globe. Glass is less porous but more irritating than plastic; nevertheless, the porosity of the plastic may cause delayed irritation later. The advent of an inert metal, such as tantalum, gave further impetus to retention without as much irritation. Now a less irritating implant is made of an inert plastic. A certain amount of foreign body reaction accompanies any type of implantation. Extrusion with loss of the implant or serious infection has never been a factor in this work. Appearance depends on the amount of replacement possible within the socket and on the man who does the technical work on the substituted eye. The more the shell is crowded in front in the cul-de-sac the less movement. The eye rotates within the socket; it does not move from side to side. The less shell anterior the less irritation of the conjunctiva. After enucleation the anatomy and physiology of the orbit is different. The conjunctiva changes from a mucous membrane to a fibrous coat which may, because of inaction, secrete an unlimited amount of mucin. The flow of tears may be checked,

6. Verhoeff, F., in discussion of paper on New Type Movable Implant, presented before the New England Ophthalmological Society, November 1947.

V 14
1951

putting mucin and water in imbalance; the water may run out to the shell and not put the mucin in solution. Too much mucin produces irritation and secondary infection. Uncovered Tenon's capsules, broken tantalum wires and rough spots on plastic or metal frequently produce granulation. At the best, conjunctiva is a poor covering tissue and is of little or no value unless it changes its character. When there is too much tissue behind an implant the tendency on muscle contraction is to force the implant forward and displace it, because of a fibrous sling which surrounds all implants after six or more weeks.

DR. WILLIAM HUGHES, Chicago: Recently a cooperative survey has been made and will be published in the *American Journal of Ophthalmology* concerning the results of the implants done at the Wilmer Institute in Baltimore, the Cook County Hospital, Hines Hospital, Research and Educational Hospitals and the Illinois Eye and Ear Infirmary in Chicago. A total of about 250 implants have been done at these institutions, including about 90 Stone-Jardon types. The technics have largely utilized silk sutures. The residents for the most part have performed the operation, and the follow-up period has been two years. In general, the motility was excellent and the cosmetic appearance was particularly good, almost eliminating the problem of a sunken upper lid. Approximately one in seven implants have either been extruded spontaneously or have had to be taken out because of excessive discharge or, in a few cases, orbital cellulitis. Retraction of conjunctiva exposing the mesh has occurred in one third of the cases. Mucopurulent discharge in excessive amounts was a problem in one third of the cases, but in another third of the cases there was no significant discharge. Antibacterial measures did not seem to combat this complication effectively. It seemed that the patients liked these implants better than the doctors did, except, of course, those patients who had to wash their eye out several times a day, or those in whom the implant was extruded. Some of us have become so discouraged with the integrated implants of all types that we have switched over to the buried types, including the Allen or Troutman implants. I would like to ask Dr. Stone for some of the details of the technics by which he localizes the muscle in secondary implantation, which would seem to be important in the cosmetic results.

DR. WILLIAM STONE JR., Boston: In considering the sizes of implants in primary operations, Dr. Ruedemann mentioned that four sizes are necessary. We have found that the 17 mm. size has filled all our sockets adequately, whether in a child or in an adult. In the secondary implant the problem is much different. Here approximately 15 different sizes and shapes are necessary to fit varying amounts of cicatricial tissue in the posterior part of the socket, different lengths of muscle and malpositions of retrobulbar fat tissue. Dr. Hughes intimated that he also was experiencing difficulties with the secondary implants. Although, as Dr. Ruedemann stated, the primary implant can be done in 35 to 45 minutes, the secondary implant takes an average of three hours. It is difficult to find the muscles in the secondaries, and this must be done. Although we try to get the patient to cooperate by moving his other eye, nevertheless the muscles are found mostly by feel, for they cannot be seen. Block dissection of the muscles is disastrous in the majority of cases, for anomalous movements will be produced as well as ptosis and lagophthalmos, and this in a purely cosmetic operation is disheartening to both the doctor and the patient. In the majority of patients the implant cannot be placed in the pseudocapsule which surrounds the glass or gold ball, for the balls are usually partially or completely extruded from the muscle cone. We have ben trying various plastic materials. In our 136 cases of implants there has been no allergic reaction to the plastic. The porosity and the water absorption of the plastics are factors to be examined more closely in the future. Our latest implant, the lateral edge with prongs for the rapid attachment of muscles, is fashioned long in the horizontal plane so that it will sit like a stable boat in the socket; thus the ordinary tonus of the muscles in the primary position, whether the muscles be too long or too short, will not pull the implant off center. This makes the problem for the eye fitter much simpler.

BENIGN STRICTURE OF THE INTRAHEPATIC BILE DUCTS

R. Franklin Carter, M.D.
and
Lee Gillette, M.D., New York

Benign fibrous stenosis of the common hepatic and common bile ducts has been frequently reported as a cause of biliary obstruction. The fibrosis has been associated with some form of surgical trauma in the majority of cases reported. The finding of stenotic areas at the first operation and the extent and character of the lesion has led some investigators to believe that the condition might also be the end result of a primary disease, ulcerative cholangitis.[1]

A similar type of benign stricture in the intrahepatic ducts, well away from the possibility of direct surgical trauma, gives additional credence to the belief that the lesion may occur primarily in operative as well as nonoperative patients and independent of surgical trauma. Ulceration by stone and injury from the pressure of an indwelling drainage tube are other causes that are mentioned in the literature. In none of the cases encountered in the intrahepatic ducts has the likelihood of either of these causes been impressive.

During the past eight years we have found 15 instances of stricture in which the site of the lesion was determined to be within the liver substance or deep within the porta hepatis. The appearance of the site of the stricture in some instances in the roentgenogram may suggest an extrahepatic position. We have found the level of the union of the two hepatic ducts to vary. In most instances, when it is viewed at operation, the junction appears to take place within the liver substance.[2] Complete dissection of the porta hepatis may have shown the union to be visible outside the liver. During the usual surgical exposure, the sites of stricture could not have been viewed outside the liver in the 15 cases reported. They were all detected either by probing into the hidden portion of the hepatic ducts or by the use of the immediate cholangiogram.[3]

The discovery of intrahepatic strictures has clarified the preoperative diagnosis of biliary obstruction in those patients previously given a diagnosis of obstructive jaundice in whom a lesion could not be found. In one of the instances reported here, case 13, the preoperative diagnosis at the time of operation was that the patient had obstructive jaundice. At surgical exploration the usual examination was made of the liver, gallbladder, extrahepatic bile ducts and pancreas. No lesion could be found by this means. In the belief that the diagnostic indications clearly indicated obstruction, the physician insisted on the performance of a

1. Judd, E. S.: Stricture of Common Bile Duct, Ann. Surg. **84**: 404-410 (Sept.) 1926. Phillips, J. R., and Kilgore, F. H.: Primary Inflammatory Stricture of Common Bile Duct, Am. J. Surg. **37**: 545 (March) 1935. Carter, R. F.: Benign Fibrous Stenosis of Common Duct, ibid. **30**: 110-114 (Oct.) 1935.

2. Walters, W., in discussion on Wilson, H., and Gillespie, C. E.: Partial Hepatectomy with Intrahepatic Cholangiojejunostomy, Ann. Surg. **129**: 756-765 (June) 1949.

3. Carter, R. F., and Gillette, L.: Immediate Cholangiography: Indications, Technic and Illustrative Cases, J. A. M. A. **143**: 951-954 (July 15) 1950.

cholangiogram. This showed areas of stricture in the intrahepatic ducts (fig. 1). Without the immediate cholangiogram, the strictured areas would not have been detected.

Obstructive lesions of this type, in which the preoperative symptoms and liver diagnostic tests indicate obstruction without its being found, serve to confuse the situation and discredit the value of preoperative liver function tests to a great extent.

Benign stricture of the extrahepatic ducts was recognized and reported by Bristowe [4] as early as 1858. It has had many able and brilliant biographers since then, among them Walters,[5] Lahey,[6] Cattell [7] and Cole.[8] Benign stricture of the bile ducts within the liver substance has not received the same recognition. Judging from our recent experience, we may have relegated many cases of this type to that all inclusive category of cirrhosis. Judging from the lack of reports of intrahepatic stricture in the literature, we hope that this experience of 15 cases is a beginning in the separation of cases of biliary cirrhosis of undetermined causation.

Fig. 1 (case 13).—Operative cholangiogram showing the stricture and mild dilatation of the right upper and lower intrahepatic ducts. Note the stricture and pronounced dilatation of the left intrahepatic duct.

INCIDENCE

Eleven cases of obstructive jaundice in the past three years have been found to be due to intrahepatic duct stricture as compared to four similar cases in the preceding five years. This increased incidence is due to more careful search of the intrahepatic ducts and more frequent use of the operative cholangiogram.

ETIOLOGY

The process of ulcerative cholangitis may occur in any portion of the biliary tract, from the smallest biliary radical to the papilla of Vater and the gallbladder wall. In sections of the common hepatic and common duct taken at operation in cases of biliary disease, all stages of inflammation have been seen,[9] i. e., hyperemia and cellular infiltration, necrosis, ulceration and cicatricial formation with maturation and shrinkage. We believe that the lesion causing stricture in these ducts is probably the end result of inflammatory changes during the course of severe cholangitis. We have not had a similar opportunity to study histologically the lesions causing the obstruction in the intrahepatic ducts. All the strictures have been within 3 cm. of the union of the two hepatic ducts, therefore we have considered the possibility that the strictured areas are a congenital site of election. They become incompetent with resulting obstruction when the density of the bile is increased in association with an infectious cholangitis.

TABLE 1.—*Operative Bile Cultures*

Number of cases	15
Positive cultures	10
Esch. coli (1 with green-producing Streptococcus)	6
B. pyocyaneus	2
Hemolytic Staphylococcus albus	1
Green-producing Streptococcus alone	1
Negative cultures	5

Data on operative bile cultures are shown in table 1. Dr. Allen O. Whipple,[10] in discussing the extrahepatic lesions, said, "It is a peculiar tendency on the part of the common duct in certain instances to form scar tissue, usually in association with the colon bacillus."

TABLE 2.—*Summary of Preoperative and Postoperative Chemical Determinations**

	Preoperative		Postoperative	
	Average	Range	Average	Range
Cholesterol	286.3	125 to 690	249.0	165 to 520
Esters	141.0	70 to 280	117.0	60 to 230
Alkaline phosphatase	10.9	4.2 to 20.7	10.7	2.2 to 30
Cephalin flocculation	1.5	0 to 4+	1.3	0 to 4+
Icteric index	55.4	4.4 to 262	86.3	4 to 210
Total protein	6.45	5.0 to 7.1	6.6	5.9 to 8.1

* The data are similar to those in any case of obstructive jaundice. The higher average of the icteric index postoperatively is due to an increased number of determinations in those patients whose jaundice did not clear in the early postoperative period.

DIAGNOSIS

The clinical picture in benign stricture of the intrahepatic bile ducts is that of an obstructive jaundice: chills; fever, continuous or intermittent, and progressive jaundice, with or without a history of previous operation. The course of illness may be that of a typical Charcot's fever in patients with infection. Preoperative and postoperative cholangiograms are useful in establishing the diagnosis (figs. 2 and 3). The chemical determinations are summarized in table 2.

4. Bristowe, J. S.: Cases Illustrating Causes and Effects of Obstruction of Hepatic Ducts, Tr. Path. Soc. London **9**: 218-228, 1858.

5. Walters, W.: Resections of Common and Hepatic Bile Ducts and Ampulla of Vater for Obstructing Lesions: Results in 30 Cases, Surg., Gynec. & Obst. **56**: 235-241 (Feb.) 1933.

6. Lahey, F. H.: Strictures of Common and Hepatic Ducts, Ann. Surg. **105**: 765-790 (May) 1937.

7. Cattell, R. B.: Benign Strictures of Biliary Ducts, J. A. M. A. **134**: 235-240 (May 17) 1947.

8. Cole, W. H.: Strictures of Common Duct, Canada. M. A. J. **58**: 582-588 (June) 1948. Cole, W. H.; Reynolds, J. T., and Ireneus, C., Jr.: Strictures of Common Duct, Ann. Surg. **128**: 332-347 (Sept.) 1948.

9. Carter, R. F., and Gillette, L.: Unpublished data.

10. Whipple, A. O.: Personal communication to the author.

V 14
1951

MANAGEMENT

The simplest treatment is dilatation of the strictured area and the insertion of an obturator (T tube) to prevent shrinkage. If the stenotic area cannot be reached through the common hepatic duct, one of the various procedures employed in reconstruction of the extrahepatic ducts must be utilized.[11] The results of by-passing operations have been thoroughly reviewed by Whipple.[12]

Careful dissection of the porta hepatis should be carried out and a thorough search for the common hepatic duct made when destruction of the extrahepatic ducts has taken place. Retraction of the margin of the fissure and the forcing of a blunt probe into the liver substance anterior to the blood vessels may give access to the intrahepatic portion of the common hepatic duct when the duct cannot be visualized as a dilated pouch. Removal of the scar tissue and liver substance on the anterior wall of the fissure back to the margin of the dilated intrahepatic portion of the duct enables a direct anastomosis to be made between adjacent openings in the duodenum and the intrahepatic duct or ducts. Sufficient liver tissue should be removed to allow the full thickness of the walls of the intrahepatic duct and the duodenum to be anastomosed, otherwise stricture of the intervening scar tissue is likely to form. We have used a T tube as an obturator,

Fig. 2 (case 15).—Preoperative cholangiogram. Patient had previously had cholecystotomy with biliary fistula for two months. Cholangiogram through the fistula revealed this stricture of the left intrahepatic duct. The remnant of the common duct is shown, barely protruded from the edge of the liver.

placing the upper end of the tube into the intrahepatic duct and the lower end of the tube into the duodenum, and bringing out the long arm through the abdominal incision. Suture material within the opening has been chromic surgical gut. Interrupted silk sutures through the serosa and Glisson's capsule of the liver serve as a support for the duodenum. As experience has increased with this method, the T tube has been left in for longer and longer periods of time; at present, one year is the average length of time for the tube to be left in position.

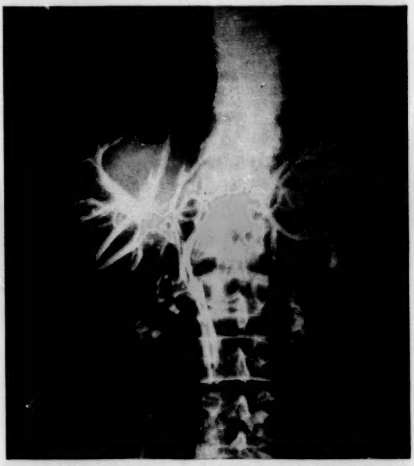


Fig. 3 (case 7).—Postoperative cholangiogram. Stricture, jaundice with cholelithiasis and two small common duct stones were inadequate to explain the jaundice, and further surgical exploration was done. Strictures of the right and left intrahepatic ducts were found, dilated and T tubes placed. This cholangiogram shows good filling and drainage of these ducts and a functioning cholecystostomy.

Whenever the extrahepatic portion of the common hepatic duct remains below the intrahepatic stricture, an incision into it above the cystic duct level will give an approach to the intrahepatic duct area. Probing into the intrahepatic ducts and dilatation of the strictured area as shown in the cholangiogram can be accomplished. When the strictured area is successfully dilated, the withdrawn probe is followed by a flow of thick mucopurulent material containing bile sand. Graded dilatation is performed up to the limit of the duct diameter above the stricture. Irrigation of the bile ducts above the stricture with saline solution until the return flow is clear and normal bile begins to flow is an important part of the procedure. The upper end of a T tube is inserted through the stenotic area. When the main right and left hepatic ducts are involved, two tubes are used, one for each of the ducts. Both lower ends are placed into the duodenum.

In case 13 there were strictured areas in two main branches of the right hepatic duct; the upper one was

11. Horgan, E.: Reconstruction of the Biliary Tract: A Review of All the Methods That Have Been Employed, New York, The Macmillan Company, 1932. Longmire, W. P., Jr., and Sanford, M. C.: Intrahepatic Cholangiojejunostomy for Biliary Obstruction: Further Studies; Report of 4 Cases, Ann. Surg. **130**: 455-465 (Sept.) 1949. Allen, A. W.: A Method of Re-Establishing Continuity Between Bile Ducts and Gastro-Intestinal Tract, ibid. **121**: 412-424 (April) 1945.

12. Whipple, A. O.: Side-Tracking Operations for Bile Duct Obstruction, Ann. Surg. **86**: 540-548 (Oct.) 1927.

found and dilated. There was no room to put a third T tube into the hepatic duct for this tributary. The stricture of the lower duct could not be detected by the probe. In order that these two tributaries might drain, the gallbladder was used as an outlet. It was

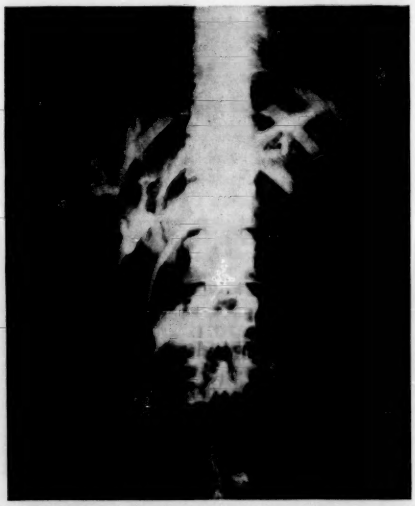


Fig. 4 (case 2).—Postoperative cholangiogram. At operation no bile could be obtained from the porta hepatis (larger catheter). The smaller catheter was inserted in an area of the left lobe that leaked bile after an adhesion had been torn from its surface. Cholangiography through this tube revealed stenosis at the common hepatic junction. Hepaticogastrostomy to the left lobe has resulted in a six year good result.

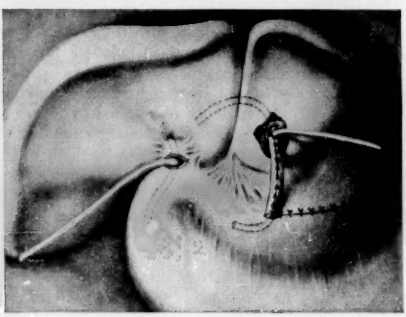


Fig. 5.—Technic of hepaticogastrostomy. This method of overcoming biliary obstruction was used in two cases. Good drainage was obtained for five years or more in both these instances.

incised on its inferior surface. A cautery was used to burn through the gallbladder bed and into the liver substance in the region of the two ducts. The ends of two orange sticks were cut and fitted into the cavity of the prepared liver sinuses to stop the bleeding. Silk ligatures were tied over the ends of the orange sticks protruding into the gallbladder cavity. The gallbladder was closed. Cholecystostomy was performed through an opening in the fundus of the gallbladder. A mushroom catheter was inserted, and the two silk ligatures were brought out along with the catheter and through the abdominal wound. The cholecystostomy tube and the silk sutures with the orange sticks attached were removed through the abdominal sinus later.[13]

TABLE 3.—*Summary of Fifteen Cases of Benign Intrahepatic Bile Duct Obstruction*

Hepaticoduodenostomy	10 cases
Choledochostomy with dilatation of strictures and insertion of T tubes	6 cases
Hepaticocholecystostomy	2 cases
Hepaticogastrostomy	2 cases
Cholecystostomy (preliminary)	2 cases
Hepaticostomy	2 cases
Average time of T tube removal in first 10 cases	6.9 months

TABLE 4.—*Summary of Follow-Up Observations**

Case	Postoperative Symptoms	No Symptoms, No Jaundice	Duration of Follow-Up	Remarks	Result
1	.....	√	.....	Died 6 mo. postoper.; diagnosis: pneumonia; no autopsy	Questionable
2	.....	√	5 yr. 8 mo.	.....	Good
3	5 yr. occasional mild episodes of jaundice		.....	Died of massive hematemesis from esophageal varices	Questionable
4	Jaundice never cleared completely; cholangitis		.....	Died in 2 yr. 2 mo. of his disease; refused reoperation	Bad
5	.....	√	2 yr.	.....	Good
6	.....	√	2 yr.	.....	Good
7	.....	√	1 yr. 9 mo.	.....	Good
8	.....	√	1 yr. 9 mo.	.....	Good
9	.....	√	1 yr. 9 mo.	.....	Good
10	Died postoper. after second operation		.....	Jaundice had never cleared	Bad
11	.....	√	1 yr. 3 mo.	.....	Good
12	.....	√	5 mo.	(Follow-up less than 1 yr.)	Good
13	.....	√	2½ mo.	(Follow-up less than 1 yr.)	Good
14	.....	√	1 mo.	(Follow-up less than 1 yr.)	Good
15	.....	√	1 mo.	(Follow-up less than 1 yr.)	Good

* Eleven cases were classified as having good results, two questionable and two bad.

In case 2 the porta hepatis was dissected and probed without our being able to find any sign of the hepatic duct. During the prolonged procedure, the bile streaming down into the wound from a chance laceration of the left lobe of the liver had been a nuisance. The operation had proceeded for three and one-half hours when the anesthetist decided that further surgical exploration was not feasible. In closing the abdomen, a no. 12 catheter was inserted into the laceration in the left lobe of the liver and brought out through the abdominal wound. Bile continued to drain through

13. Carter, R. F., and Marraffino, B.: Hepatocholecystenterostomy for Relief of Jaundice in Obliteration of Hepatic Ducts, Am. J. Surg. **64**: 217-226 (May) 1944.

V 14
1951

the catheter. A delayed cholangiogram (fig. 4) suggested the procedure shown in figure 5. A similar procedure was used in case 3.

RESULTS

The various surgical procedures used in the 15 cases of benign intrahepatic bile duct obstruction are summarized in table 3, and the results of follow-up are given in table 4. The incidence, age, sex, duration of symptoms and observations at the physical examination on first admission are shown in table 5.

REPORT OF CASE

CASE 13.—F. G. had as his chief complaint jaundice and weakness for six weeks. He presented the typical picture of an infectious hepatitis with 4 plus cephalin flocculation and other confirmatory laboratory observations. Two weeks later, however, the picture had changed to that of obstructive jaundice with a high alkaline phosphatase level and a high cholesterol determination. A decision to perform an exploratory laparotomy was made because of this change in the course of the patient. Surgical exploration revealed no evidence of carcinoma or cholelithiasis or stricture of the extrahepatic ducts. A catheter was placed in the common duct and a cholangiogram taken. This revealed two strictures of the right intrahepatic ducts. The patient was admitted to the University Hospital with this history. The laboratory results were typical of obstructive jaundice. At operation cholangiography revealed stricture of two branches of the right hepatic duct and a stricture of the left hepatic duct with enormous distention behind it. When this left duct stricture was dilated with a clamp, a great deal of mucopurulent bile was obtained; a small amount of the same material was obtained with dilatation of the right superior duct. After dilatation of these two ducts, T tubes were placed through the stenotic areas. One main tributary to the right hepatic duct from the inferior portion of the right lobe of the liver could not be reached, and a cholecystohepaticostomy [13] was necessary to drain bile in retrograde into the gallbladder and thence through the cystic duct. A second cholangiogram taken in the operating room indicated that the right and left hepatic ducts were adequately dilated and draining freely (fig. 1). The patient's jaundice diminished rapidly postoperatively, and he felt much better. His jaundice did not clear completely, however, until a month postoperatively when the cholecystohepaticostomy for the first time began to function.

TABLE 5.—*Summary of Statistical Data*

Incidence by years	1942 to 1943: 1 case 1944 to 1946: 3 cases 1947 to 1949: 11 cases
Age	Range: 35 to 71 yr. Average: 52.5 yr.
Sex	Females: 10 cases Males: 5 cases
Duration of symptoms	Range: 12 days to 4 yr.
Average operations, preadmission	1.6
Physical examination of first admission	Enlarged liver: 11 Enlarged spleen: 2 Biliary fistula: 5

SUMMARY

Attention is directed to a lesion causing biliary cirrhosis that has received little surgical attention. The observations, treatment and follow-up in 15 such cases are tabulated. It is urged that operative search for this lesion and operative cholangiography be done in cases of obstructive jaundice.

303 East Twentieth Street (3).

RELATION BETWEEN TONSIL AND ADENOID OPERATIONS AND CLEFT PALATE

Hugh Gibson Beatty, M.D., Columbus, Ohio.

This paper concerns the patient who has been operated on for the correction of a congenital cleft palate and a few years later has a definite infection of the palatine tonsils, a simple tonsillar hyperplasia or adenoid hypertrophy. Depending on the operator and the surgical procedure of the original cleft palate operation, the deglutitory and phonetic results should be entirely satisfactory as the child develops. In some cases in which the cleft palate has been closed and a good result secured, the physician is reluctant to have a tonsillectomy done, fearing a resultant speech defect. Later the lymphoid structure in the oropharynx and nasopharynx, as a rule, naturally undergo changes to such an extent that complications ensue, usually at the ages of two to six years. Such complications are the result of lymphoid structure infection with hypertrophy. These changes occur principally in the palatine tonsils and nasopharyngeal adenoid mass. The lateral and posterior pharyngeal wall structures may be involved. A simple hyperplasia of these structures without infection may occur.

When such a patient has local or systemic complications as a result of infection of these structures, the usual treatment must be instituted regardless of a previous palate operation. The child born with a cleft palate is always a responsibility of the physician in charge from birth until adolescence.

At the time of birth, proper feeding must be undertaken. Competent surgical advice must be obtained. After operation, the general health of the patient must be observed closely. Most of these patients have at birth normal palatal structures, but there is a failure of union. Except in rare instances, when the components are underdeveloped or extremely wide clefts occur, the patient will have satisfactory swallowing and speech functions if the operation has been properly managed.

Especially during the first three years of life, the child should be closely observed for complications of the ear and obstructed respiration, chiefly caused by adenoid hypertrophy, or nasal obstruction due to the usually deflected nasal septum. Symptoms such as earache, impaired hearing or middle ear infection in these patients are not due to the palate but to nasopharyngeal or palatine tonsil changes. Malnutrition, anemia, thyroid dysfunction and allergy must also be considered. These deficiencies must be diagnosed and treated.

There may in some instances be a hyperplasia of the palatine tonsils, but simple hyperplasia without infection does not require tonsillectomy, as this condition probably is due to one or more of the above men-

Read before the Section on Laryngology, Otology and Rhinology at the Ninety-Ninth Annual Session of the American Medical Association, San Francisco, June 28, 1950.

tioned deficiencies, and tonsillectomy is contraindicated. However, one must remove a large adenoid mass to aid free nasal breathing and protect the ears; this can be done on a patient of any age when necessary. If the adenoid regenerates rapidly one should look most carefully for one of the deficiencies, especially aliergy or thyroid dysfunction.

In most of these children, tonsillectomy becomes necessary at some time because of chronic tonsillar infection; after repairing the palate in a child, I advise the parents to return the patient for this operation when it seems necessary. Some patients may continue growth without complications and do not require removal of the tonsils. If a tonsillectomy is done in the usual way, an unpleasant speech defect and deglutitory difficulties will develop in most of these patients, because the

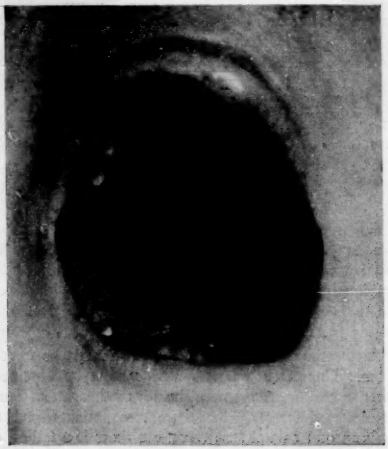


Fig. 1.—Illustration of the closure of the hard and soft palate at the age of 15 years and subsequent elongation of the palate with tonsillectomy. The rounded nodule in the center of the palate is the remains of the uvula. Had ordinary tonsillectomy been done, the lower palate border would have been at this level. This would have resulted in pronounced speech defect and deglutitory difficulties. The lower border of the new palate is noted just above the tongue. Good function resulted in the patient.

natural contraction of the tonsillar fossae will cause a shortening by contraction of the soft palate. This defect does not develop in all tonsillectomized patients. It does occur in the patient with a cleft palate operation because of previous surgical procedure on the palatal muscles. Operation is delayed until it is a proved necessity, and then only surgical treatment is advised. Electrocoagulation and other charlatanic procedures do not remove the tonsils and do cause contractures. When the general practitioner or pediatrician is permitted to do the operation, poor results may occur.

Anyone contemplating a tonsillectomy for a patient who has had a cleft palate operation should remember these points:

1. If the tonsillectomy is done by any of the accepted methods, natural contractions will, to varying extents, impair the speech and function of the velum in deglutition.

2. It is the operator's duty not only to remove the infected tonsils but also to prevent impairment of speech and function of the palate.

3. It is possible in some instances for the operator to actually improve the speech by adopting proper technic.

4. These measures must be taken at the time the tonsils are removed. Later corrective operations are not satisfactory because of contractions of the tonsillar fossae.

In my practice the majority of infants who are well nourished and cared for do not have ear infections prior to the age of operation for closure of the cleft. The ones who do have this complication are in some way physically deficient. I do not advocate closure of the cleft until the child is about 14 months old; in my opinion, there is some natural, protective factor in these patients whose oral and nasal passages are abnormally connected and exposed to all material taken by mouth. In these young patients the orifice of the eustachian tube is constantly exposed to oral secretion, food, thumb sucking and feeding suction effects, and the tube and middle ear is thereby exposed to foreign contents.

Possibly the protective factor is a reflex closure mechanism concomitant with the congenital deformity, going back to the gill age, and the bacteriostatic action of the nasal and oral mucus in well cared for babies.

The method described below is called tonsillectomy with extension of the palate. The operation was originated by Hudson Macuen (Brophy [1]) some years ago. However, I have been unable to find any data on his results. I became conscious of the possibilities of the operation through my service with the late T. W. Brophy [1] and his publications and have modified and perfected the original technic.

PROCEDURE

Operation is preferably delayed until the child is 6 or 7 years old, but this is not always possible. In doing this operation, I remove all the tonsil in some instances; in others I leave a strip of tonsil and capsule at its mesial attachment of the palatopharyngeus muscle. The uvula is partially removed, and the borders of the palatopharyngi muscles are carefully split as far ventrally as is desired for union and usually a little farther, as overcorrection is a good procedure for compensation for contracture and some possible separation. The dorsal borders of the muscles are then united with fine horsehair sutures and knots tied on the nasopharyngeal surface. The anterior borders are then closed with fine horsehair. As the closure approaches the lower or ventral extent, the muscle is cut through sufficiently in a transverse direction for the attainment of relaxation. This cutting of the mesial portion of this muscle does not noticeably impair the function of the new palate, because the innervation of the muscle is not damaged by a partial section. Bleeding is controlled. Silver

1. Brophy, T. W.: Oral Surgery, New York, The Blakiston Company, 1916, p. 711, fig. 580.

V 14
1951

wires are introduced through the palatoglossi and newly-closed palatopharyngi muscles, which are to be united over lead plates as in the soft palate cleft closure.

A rubber breathing tube is passed through one nostril down to the lower border of the closure. This facilitates easy breathing and lessens respiratory vibration of the new structure. The tube is removed in 24 hours. Again the tension of the wires on the lead plates must be correct and careful daily attention is necessary during the following days, as the approximated flaps are not a sturdy structure like the velum. This results in a good extension and gives satisfactory functional results. If the tonsils are small and I believe there will not be too much contraction, this extension is not done.

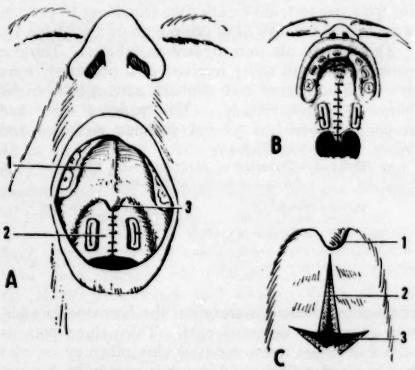


Fig. 2.—Descriptive cuts of the described operation. *A*, closed hard and soft palate (1), extension as described (2) and uvula (3). *B*, my technic for closure of the hard and soft palate. No lateral incisions or elevations are done. All flaps are raised from the border of the clefts. *C*, uvula (1), prepared palatoglossal flaps for suturing (2) (two lines of sutures are made as described) and transverse incisions in the muscle (3).

SUMMARY AND CONCLUSIONS

A patient with a successful cleft palate operation often has subsequent changes in the pharyngeal lymphoid structures just as any other patient. No child should be denied the removal of obstructive or infected pharyngeal lymphoid structures. However, the type of patient described requires special consideration.

Any obstructive adenoid mass must be removed before the effects of complications are advanced. Lymphoid hyperplasia of the adenoid and palatine tonsils has been discussed and deserves most careful consideration. Infection of the pharyngeal lymphoid constituents of Waldeyer's tonsillar ring must be dealt with in these patients just as completely as in any other patient.

A technic eminently satisfactory for the preservation of the functions of the soft palate is described. If the operation is properly performed, the necessity for much more formidable surgical procedures involving the palatal structures may be avoided.

ABSTRACT OF DISCUSSION

DR. EDWARD D. KING, Los Angeles: The physiology of articulation consists of the regulation of the air pressure in the oral cavity. The orbicularis-oris, the tip of the tongue and the base of the tongue perform their function for certain sounds. When the constrictor pharyngis superior and the levator palati muscles are in action with the palate, they separate the oral cavity from the nasopharynx and thus prevent air from going into the nasal cavity. The tensor palati and the levator palati muscles raise the soft palate and open the orifices of the eustachian tubes. The palatoglossus in the anterior pillar and the palatopharyngeus in the posterior pillar draw the palate downward. Whenever a congenital or a traumatic malformation interferes with the function of one of these groups of muscles, the speech sounds for which these muscles are responsible will be defective. Speech habits in the child begin at about the age of 18 months and are well established at 4 years. Authorities state that the cleft palate child is completely unaware of the difference between his speech and the speech he hears around him. This is the opposite of the stutterer. The restoration of normal speech is the criterion of successful treatment of cleft palate. The length and mobility of the palate plays an important part in the final result. The hearing acuity and the intelligence of the patient must be taken into consideration. Freud, in relating his experience with speech training at Manhattan Eye and Ear Hospital, states that after a few months of speech training if no improvement in the consonants occurs and the nasal sounds continue, additional surgical intervention is indicated. This consists of dissecting upward the loose tissues of the palate and pushing the entire palate backward. Dorrance, in 1925, described this procedure which was given the name push-back operation. Since then many surgeons have described modifications, with the hope of producing a palate loose enough and long enough to close the oral cavity when the palate is in action. Most laryngologists defer operation in these patients until it is absolutely necessary. A surprising amount of scar formation in the soft palate and surrounding tissues after poor operative technic may be present without disturbance of speech. One must conclude that speech patterns, having once been established, are not easily changed. Dr. Beatty points out the narrow margin of safety in the child with cleft palate and has emphasized that the operation must be performed with careful regard for the function of these structures. He has described a procedure which has given him excellent results.

Activities of Libraries.—University librarians are aware that we are now in the midst of a Communications Revolution, and that one of the really big problems of our time is to discover how this revolution affects our responsibility for collecting and preserving *all* the records which scholars of the future will demand as they attempt to define and interpret the significance of our own time. As of now, all of us—librarians and teachers—have pretty well ignored the output of communication media other than the printing press, as primary source material for research—and we have done so for a twenty-year period that is as critical as any similar period in the last thousand years.

But lest anyone think we moderns are peculiarly blessed by a lack of vision, let me say that looking back over the history of scholarship during the last five thousand years, it should be clearly evident that at no single moment has man ever been wise enough to preserve those records of his time that scholars generations later would need most. In fact, in most instances, the useless have been kept and the valuable destroyed. . . . Up to the present librarians have followed a policy of each acquiring everything we could beg, buy, or steal. But now even our largest libraries are seeing the futility in this kind of frenzied activity. The average cost of purchasing and cataloging each book in our libraries is probably two dollars, regardless of the price of the book. The average annual cost of storing a volume is something around fifteen cents. For every dollar each library spends on books and journals, it spends two or three for staff personnel.—Ralph E. Ellsworth, Extra-Curricular Activities of Libraries, *The Quarterly Journal of Speech*, December 1950.

EFFECTS OF PITUITARY ADRENOCORTICOTROPIC HORMONE (ACTH) IN RHEUMATOID ARTHRITIS

H. M. Margolis, M.D.
and
Paul S. Caplan, M.D., Pittsburgh

Demonstrating striking remission in activity of rheumatoid arthritis resulting from administration of the adrenal cortex hormone, cortisone, and pituitary adrenocorticotropic hormone (ACTH), Hench, Kendall, Slocumb and Polley [1] provided a new, promising tool for further investigation of the pathogensis of rheumatoid arthritis. Further, these observers also indicated the possibility of practical application of these hormones in the treatment of the disease.

The effects of short term administration of pituitary adrenocorticotropic hormone in rheumatoid arthritis have been described by various writers.[2] Remission, they indicated, is generally induced rapidly but not maintained after cessation of therapy. Relapse develops in practically all instances, frequently immediately after discontinuation of treatment.

Our chief interest was directed toward study of the clinical and metabolic effects of long-continued administration of pituitary adrenocorticotropic hormone and of means which might be developed for maintaining the remission induced after administration of the hormone is discontinued. We were particularly interested in the safety of long term administration and sought to determine whether the beneficial therapeutic effects would outweigh the undesirable side effects of therapeutic doses of the hormone.

Since we knew that in a certain proportion of cases of rheumatoid arthritis remission of activity of the disease can be achieved with gold therapy and can often be maintained by maintenance doses of gold salts given every few weeks, it appeared to us to be quite possible that gold therapy instituted immediately after onset of the remission induced by pituitary adrenocorticotropic hormone and continued with tapering doses of the substance, might maintain the remission after use of the hormone was discontinued.

With the view, therefore, of observing the effect of chrysotherapy combined with pituitary adrenocorticotropic hormone and to determine the place of the hormone as a practical therapeutic tool in rheumatoid arthritis, we undertook investigation of a group of patients with the disease when the hormone became available to us for the study in January 1950.[3]

SELECTION OF PATIENTS AND METHODS OF STUDY

The present report records the results of our experience in the first group of 56 patients treated with the hormone over periods ranging from seven to 225 days. Forty-six of the patients were treated for periods ranging from two to seven months; the remaining 10 patients were treated for periods of one month or less (table 1).

The 56 patients were treated as follows: Thirteen patients who had never received gold previously were given chrysotherapy and pituitary adrenocorticotropic hormone simultaneously. Ten patients who had responded poorly to general systemic measures and chrysotherapy alone were given the hormone in addition to weekly doses of gold. Thirty-three patients who had either never received chrysotherapy or who had received gold therapy in varying amounts, but not for some time prior to the institution of treatment with pituitary adrenocorticotropic hormone, were now treated with the hormone alone.

TABLE 1.—*Duration of Treatment with Pituitary Adrenocorticotropic Hormone*

Period of Treatment, Mo.	No.	Period of Treatment, Mo.	No.
Less than 1	6	4	8
1	4	5	3
2	18	6	2
3	11	7	4

We were intimately acquainted with the course of the arthritis in 29 of the patients, who had been under our care for from one to 12 years; of these, 22 had been under our treatment for over three years. The majority of the 27 patients whom we had not treated previously had had various types of treatment for rheumatoid arthritis from other physicians. Nearly all these patients either had shown no improvement or progressive structural arthritic changes were developing. The patients we selected for treatment with the hormone had responded unfavorably to other regimens of management. Thirty-five of the patients were women; 21 were men.

Varieties of Rheumatoid Arthritis Treated.—Forty-nine of the 56 patients presented the typical variety of generalized rheumatoid arthritis; six patients were classified as having psoriatic arthritis, and one patient presented rheumatoid spondylitis with psoriasis. Nine patients had various types of associated organic disorders (table 2).

Age Distribution.—The age of the majority of the patients ranged from 41 to 76 years; 31 members of the group were in the fifth decade of life (table 3).

Aided by a grant from the Western Pennsylvania Chapter of the Arthritis and Rheumatism Foundation and the John C. Oliver Memorial Research Foundation of St. Margaret Memorial Hospital.

From the Department of Medicine, University of Pittsburgh School of Medicine; St. Margaret Memorial and Montefiore Hospitals, and the John C. Oliver Memorial Research Foundation of St. Margaret Memorial Hospital.

1. Hench, P. S.; Kendall, E. C.; Slocumb, C. H., and Polley, H. F.: Effect of a Hormone of the Adrenal Cortex (17-Hydroxy-11-Dehydrocorticosterone: Compound E) and of Pituitary Adrenocorticotropic Hormone on Rheumatoid Arthritis: Preliminary Report, Proc. Staff Meet., Mayo Clin. **24**: 181-197 (April 13) 1949.

2. Markson, D. E.: Prolonged Treatment of Rheumatoid Arthritis with Pituitary Adrenocorticotropic Hormone (ACTH), J. A. M. A. **141**: 458-459 (Oct. 15) 1949. Elkinton, J. R.; Hunt, A. D., Jr.; Godfrey, L.; McCrory, W. W.; Rogerson, A. G., and Stokes, J., Jr.: Effects of Pituitary Adrenocorticotropic Hormone (ACTH) Therapy, J. A. M. A. **141**: 1273-1279 (Dec. 31) 1949. Thorn, G. W.; Forsham, P. H.; Frawley, T. F.; Hill, S. R., Jr.; Roche, M.; Staehelin, D., and Wilson, D. L.: Medical Progress: The Clinical Usefulness of ACTH and Cortisone, New England J. Med. **242**: 824-834 (May 25) 1950. Freyberg, R. H.: Effects of Cortisone and ACTH in Rheumatoid Arthritis, Bull. New York Acad. Med. **26**: 206-211 (April) 1950. Boland, E. W.: Effects of Cortisone and Adrenocorticotropic Hormone (ACTH) on Certain Rheumatic Diseases, California Med. **72**: 405-414 (June) 1950. Holbrook, W. P., and Hill, D. F., in Manual of Rheumatic Diseases, Chicago, The Year Book Publishers, Inc., 1950. Ragan, C.; Grokoest, A. W., and Boots, R. H.: Effect of Adrenocorticotropic Hormone (ACTH) on Rheumatoid Arthritis, Am. J. Med. **7**:741 (Dec.) 1949. Spies, T. D., and Stone, R. E.: Relief of the Symptoms of Acute Gout and Rheumatoid Arthritis by Means of Pituitary Adrenocorticotropic Hormone (ACTH), South. M. J. **42**:720 (Aug.) 1949.

3. The pituitary adrenocorticotropic hormone used in these studies was supplied by Dr. John R. Mote of The Armour Laboratories, Chicago.

Duration of Arthritis.—All but 13 of the patients had had the disease for periods ranging from three to 30 years. Only four patients had had arthritis for less than one year (table 4).

Range of Dosage and Manner of Administration of the Hormone.—The initial doses of pituitary adrenocorticotropic hormone ranged from 30 to 120 mg. a day. Dosage was generally established by conjecture in relation to the severity of the arthritic process. The majority of the patients (35) received an initial dose of 40 to 60 mg. daily. Ten patients received an initial dose of 120 mg. daily, one 100 mg., nine 80 mg., twenty-one 60 mg., fourteen 40 mg. and one 30 mg., all daily doses (table 5).

The total daily dose was administered intramuscularly, generally in four equal doses at six hour intervals. In a few cases the total dose was divided into six parts, given every four hours. When striking improvement occurred, the dose was gradually reduced to the minimum amount necessary to maintain a desired degree of improvement. When the initial dose did not produce striking improvement, the dose was increased gradually.

In 13 of our cases pituitary adrenocorticotropic hormone was administered intermittently. In the remaining 43 cases the hormone was given uninterruptedly for periods ranging from seven to 225 days.

The preparation of gold we employed was aurothioglucose (solganal®).[4] It was given intramuscularly in increasing doses starting with 0.010 Gm. the first week, 0.025 Gm. weekly for several weeks and then a weekly dose of 0.050 Gm.

TABLE 2.—*Varieties of Rheumatoid Arthritis and Associated Organic Disorders*

	No.
Rheumatoid Arthritis	
Typical generalized rheumatoid arthritis	49
Psoriatic arthritis	6
Rheumatoid spondylitis with psoriasis	1
Significant Associated Disorders	
Bronchial asthma	1
Diabetes mellitus	1
Arteriosclerotic heart disease with episodes of transitory congestive failure	1
Cerebral arteriosclerosis	1
Uveitis	2
Duodenal ulcer	1
Marked general debility with decubitus ulcers	1
Benign essential hypertension	1

TABLE 3.—*Age Distribution of Patients Treated*

Age, Yr.	No.	Age, Yr.	No.
8	1	31 to 40	6
10 to 20	2	41 to 50	31
21 to 30	3	61 to 76	13

TABLE 4.—*Duration of Arthritis*

Time, Yr.	No.	Time, Yr.	No.
Less than 1	4	3 to 10	34
1 to 3	9	12 to 30	9

TABLE 5.—*Range of Initial Dose*

Dose of ACTH, Mg.	No. of Patients	Dose of ACTH, Mg.	No. of Patients
120	10	60	21
100	1	40	14
80	9	30	1

Severity of Arthritis.—In classification proposed by Steinbrocker, Traeger and Batterman,[5] the degree of structural change is indicated by stages I to IV (stage I denoting absence of destructive joint changes and stage IV indicating advanced degrees of structural change with fibrous or bony ankylosis). The degree of functional impairment is indicated by classes I to IV (class I presenting no functional impairment; class II being handicapped but able to carry on usual activities; class III being those unable to perform usual duties, and class IV, those who are bedridden or confined to a wheel chair). Our patients could be classified as indicated in table 6.

RESULTS OF TREATMENT

The results of treatment were first evaluated in July 1950. Under Steinbrocker's [5] suggested classification of the therapeutic response into grades I to IV,[6] 40 of the 56 patients exhibited either complete remission or a major (grade II) improvement (table 7).

TABLE 6.—*Classification of Severity of Rheumatoid Arthritis*

Structural Change (Stage)	Functional Impairment (Class)	No. of Patients
I	II	3
	III	2
II	II	14
	III	11
	IV	2
III	II	4
	III	12
	IV	6
IV	II	1
	IV	1
Total		56

TABLE 7.—*Results of Treatment with Pituitary Adrenocorticotropic Hormone in Rheumatoid Arthritis*

	No.	%
Complete (grade I) remission	20	36
Major (grade II) improvement	20	36
Minor (grade III) improvement	12	21
Unimproved (grade IV)	4	7

The four patients who were unimproved presented the following features.

A youth 18 years of age had severe rheumatoid arthritis of nine years' duration. He presented involvement of practically every joint, with fibrous and bony ankylosis of most of them, including the temporomandibular joints. Observation of the effect of pituitary adrenocorticotropic hormone in a dose of 60 mg. a day for one week indicated no change in his arthritis.

The next patient, a woman 29 years of age, of markedly psychoneurotic personality and with progressive rheumatoid arthritis of three years' duration, was treated for a period of six weeks with a dose of 40 mg. per day. She indicated neither subjective nor objective improvement.

The third patient, aged 48, had had arthritis of eight years' duration which, in general, had shown a progressively downward trend. This patient, too, presented a markedly psychoneurotic personality. He showed a major (grade II) degree of

4. The aurothioglucose employed in this study was supplied through Dr. Alan Wright, Associate Medical Director, Schering Corporation.

5. Steinbrocker, O.; Traeger, C. H., and Batterman, R. C.: Therapeutic Criteria in Rheumatoid Arthritis, J. A. M. A. **140**: 659-662 (June 25) 1949.

6. Grade I denotes a complete remission, grade II a major improvement, grade III minor improvement and grade IV no improvement or progression of the disease.

improvement at first, when he was receiving 60 mg. of the hormone per day. He subsequently relapsed to the status he presented prior to the institution of treatment, although the dose was increased to 80 mg. per day.

A woman 69 years of age had had severe rheumatoid arthritis of ten years' duration. She also had a duodenal ulcer which was asymptomatic at the time treatment with pituitary adrenocorticotropic hormone was started. On an initial daily dose of 60 mg. of the substance the patient experienced a major (grade II) improvement, which she maintained despite gradual reduction of the dose to 20 mg. a day. After 12 days on the reduced dose, coincidentally with the death of her husband, the patient had a relapse and her condition retrogressed to a state equivalent to that prior to the institution of treatment. On increase of the dose of the hormone to 45 to 60 mg. a day the patient first showed a minor degree of improvement and then had another relapse despite maintenance of the latter dose. During this period symptoms indicating reactivation of the ulcer also appeared.

Change in Functional Capacity After Treatment with the Hormone.—Of the five patients with no structural change (stage I), all of whom had moderate incapacity, none had any residual functional incapacity after a period of treatment with pituitary adrenocorticotropic hormone. Of 27 patients with structural change of stage II, no functional incapacity at the end of treatment was shown by 11. The majority indicated considerable improvement. Of 22 patients with structural change of stage III, fifteen improved considerably in functional capacity and seven slightly. Of the two patients with the extreme structural change of stage IV, neither improved in functional capacity (table 8).

TABLE 8.—*Change in Functional Capacity in Rheumatoid Arthritis After Treatment with Pituitary Adrenocorticotropic Hormone*

Structural Change (Stage)	Functional Impairment (Class)	No. of Patients Before ACTH	No. of Patients After ACTH	Total
I	I	0	5	
	II	3	0	5
	III	2	0	
II	I	0	11	
	II	14	11	27
	III	11	4	
	IV	2	1	
III	I	0	3	
	II	4	12	22
	III	12	7	
	IV	6	0	
IV	II	1	1	2
	IV	1	1	
Total		56	56	56

Variation in Clinical Response from One Period to Another.—In some patients the clinical response to treatment varied from one period to another when the dose of the hormone was reduced, in others when a given dose was continued and in still others even when the dose was increased. For example, two of the patients classified as having obtained a major (grade II) improvement had previously shown a complete (grade I) remission. In one of these the lower degree of improvement may be related to reduction of the daily dose of the hormone from 60 mg. to 20 mg. per day. It appeared advisable, however, to accept the satisfactory (though lesser) degree of improvement with the relatively small dose rather than to increase the dose threefold to obtain the complete remission noted initially. In another instance, a patient with severe psoriatic arthritis, the initial daily dose of 80 mg. is still being maintained, but the degree of improvement which was classified at first as a complete (grade I) remission can now be classified as only minor (grade III) improvement.

Of nine patients classified as having obtained minor (grade III) improvement, three patients had previously shown major (grade II) improvement. Of these three, one had had major (grade II) improvement when she was receiving 60 mg. of pituitary adrenocorticotropic hormone daily. Subsequently, the improvement was less striking, having changed to minor (grade III) improvement although the dose of the hormone had been increased to 120 mg. per day. Another patient had obtained major (grade II) improvement on a daily dose of 60 mg. She subsequently showed only minor (grade III) improvement on a daily dose of 60 to 40 mg. of the substance. The third patient had shown major (grade II) improvement on a dose of 75 mg. per day. She subsequently relapsed to a minor (grade III) improvement, although the dose of the hormone had been increased to 90 mg. per day. It is significant that the patients whose degree of improvement lessened with time, despite increased dosage of pituitary adrenocorticotropic hormone, had rheumatoid arthritis which had previously shown erratic improvement on other forms of therapy.

Deterioration of Improvement with Long-Continued Administration of the Hormone.—Thus far we have described the results of the first evaluation of the clinical efficacy of pituitary adrenocorticotropic hormone. There was so much variation from time to time and so marked a tendency in some instances toward retrogression with long-continued treatment that we analyzed results again after a lapse of seven weeks. The first analysis of results was completed in July 1950; the last one, in September 1950. It is important to compare the change in the clinical status which developed between these two periods.

Since the first analysis of our results (July 1950 and up to September 1950) 25 patients discontinued the use of the hormone for various reasons. Five patients stopped treatment after complete remissions developed that have been maintained during continued chrysotherapy. These patients will be discussed later. Six patients stopped treatment because of unsatisfactory degrees of improvement that did not warrant further use of the hormone. The present status of these patients is the same as when the hormone was discontinued. Thirteen other patients discontinued treatment for reasons unrelated to clinical status. One patient discontinued use of the substance when she obtained a remission, maintained it for two months, had a relapse and has not obtained the degree of improvement achieved previously even though administration of the hormone has been resumed.

The data concerning the remaining 31 of the 56 patients under continued administration of pituitary adrenocorticotropic hormone, either alone or with chrysotherapy, were reviewed again with reference to the results of treatment at the end of an additional period of seven weeks, on Sept. 15, 1950. A comparative analysis of the results of treatment with the hormone in these 31 patients for the two periods, July 1950 and September 1950, is shown in table 9 and

indicates deterioration in the degree of improvement in some cases with long-continued administration of the hormone.

Although nine of the 31 patients (29 per cent) had shown evidence of complete (grade I) remission in July, only seven (23 per cent) had shown a similar remission in September 1950. As compared with 13 patients (42 per cent) who showed a major (grade II) improvement in July, only eight (25 per cent) showed a major (grade II) improvement in September 1950. As compared with eight patients (26 per cent) who had shown a minor (grade III) improvement in July, seven patients (23 per cent) showed a similar degree of improvement in September. Most striking is the change in the unimproved (grade IV) group. There was one patient of the 31 (3 per cent) in July 1950, and nine patients (29 per cent) in September 1950. It is therefore evident that the attainment of a complete remission or marked degree of improvement with pituitary adrenocorticotropic hormone does not necessarily insure maintenance of this status with long-continued therapy.

TABLE 9.—*Deterioration in Degree of Improvement with Long-Continued Administration of Pituitary Adrenocorticotropic Hormone in Thirty-One Patients*

	Results of Treatment			
	7/25/50		9/15/50	
Clinical Effect	No.	%	No.	%
Complete (grade I) remission	9	29	7	23
Major (grade II) improvement	13	42	8	25
Minor (grade III) improvement	8	26	7	23
Unimproved (grade IV)	1	3	9	29
Total	31	100	31	100

Patients in Whom Administration of the Hormone Could be Discontinued.—In contrast to the discouraging aspect of retrogression in many instances under long-continued therapy are seven patients who had been under treatment for 47 to 224 days with varying doses of pituitary adrenocorticotropic hormone who have been able to discontinue use of the hormone and maintain the complete remission they had obtained during treatment. The duration of remission without the hormone to date has ranged from 30 to 229 days. It may be significant that all the seven patients had received both pituitary adrenocorticotropic hormone and chrysotherapy.

The details concerning the circumstances in these cases is worthy of citation (table 10).

Mrs. B. L., aged 58, had rheumatoid arthritis of 18 months' duration accompanied with only a moderate degree of structural change but marked functional incapacity. She was able to resume her usual duties as a housewife without residual functional incapacity after 97 days of treatment with 1.030 Gm. of pituitary adrenocorticotropic hormone and 0.575 Gm. of aurothioglucose; this remission has been maintained for 198 days to date.

Mrs. I. B., aged 51, had rheumatoid arthritis of 1½ years' duration with considerable structural change and marked functional incapacity. After 102 days of treatment with 1.820 Gm. of the hormone and 0.480 Gm. of aurothioglucose, the patient was able to resume all her former duties as a housewife without any functional incapacity. The remission has been maintained for 194 days to date.

Mr. L. P., a man aged 59 years, who had suffered from rheumatoid arthritis for six months, has maintained a complete remission for 111 days and has returned to his regular occupation as a business man after receiving 3.930 Gm. of pituitary adrenocorticotropic hormone and 0.380 Gm. of aurothioglucose in 78 days.

Miss M. L. M., a girl 15 years of age with severe generalized rheumatoid arthritis of 10 years' duration, marked structural change and severe functional incapacity before treatment, was able to discontinue pituitary adrenocorticotropic hormone therapy at the end of 47 days. A marked improvement in functional capacity has been maintained for 229 days to date.

TABLE 10.—*Patients Who Maintained Remission When Pituitary Adrenocorticotropic Hormone Was Discontinued*

Patient	Age, Yr.	Duration of Arthritis, Yr.	No. Days ACTH Administered	Total Amount of ACTH, Gm.	Total Amount Gold Salt Up to Time ACTH Discontinued Gm.	Duration of Remission Without ACTH, Days
Mrs. B. L.	58	1½	97	1.030	0.575	198
Mrs. I. B.	51	1½	102	1.820	0.480	194
Mr. L. P.	59	½	78	3.930	0.380	111
Miss M. L. M.	15	10	47	1.900	2.475	229
Mr. F. P.	41	1	224*	2.640	0.850	79
Mr. J. Z.	42	5	59	2.080	0.290	77
Mrs. L. F.	50	6	107	4.585	0.570	30

* Received 10 mg. pituitary adrenocorticotropic hormone every fourth day during last 30 days of treatment.

Mr. F. P., a man aged 41 years, who had suffered from rheumatoid arthritis for one year and who had had concurrent gold and pituitary adrenocorticotropic hormone therapy for most of 224 days, has been employed as a mill worker for eight months. For the last 30 days he received 10 mg. of the hormone every fourth day, a dose which is generally inadequate to maintain a comparable degree of remission. He has maintained complete remission for 79 days without the hormone.

Mr. J. Z., a man 42 years of age with rheumatoid arthritis of 5 years' duration, received pituitary adrenocorticotropic hormone and chrysotherapy for 59 days. The hormone was then discontinued, but the remission has been maintained for 77 days to date, and the patient has been at his usual work as a machinist.

Mrs. L. F., a woman 50 years of age, had suffered from rheumatoid arthritis for six years. After both aurothioglucose and a total of 4.585 Gm. of pituitary adrenocorticotropic hormone were given for a period of 107 days, the hormone was discontinued. The complete remission has been maintained for thirty days to date and she has resumed her usual responsibilities as a housewife.

TABLE 11.—*Possible Relation of Degree of Improvement with ACTH to Chrysotherapy*

	No. of Patients	Complete Remission or Major Improvement	%	Remission Maintained After ACTH Discontinued
Simultaneous administration of ACTH and chrysotherapy	13	10	77	6
Chrysotherapy up to institution of ACTH therapy, continued with ACTH	10	8	80	1
No chrysotherapy or none for 3 to 60 months	33	20	61	0

Of the other 16 patients who were given pituitary adrenocorticotropic hormone combined with chrysotherapy, six have discontinued treatment for various reasons and the remaining 10 patients are maintaining the remission but are still receiving the hormone along with chrysotherapy.

POSSIBLE RELATION OF TREATMENT WITH THE HORMONE TO CHRYSOTHERAPY

Of the 56 patients under study (table 11), 13 had never received gold therapy prior to pituitary adrenocorticotropic hormone therapy. The two were given

concurrently. Either a complete remission or a major degree of improvement developed in 10 of the 13 patients (77 per cent). Six of these 10 patients have maintained the remission for periods of 30 to 198 days after cessation of therapy with the hormone.

Ten patients had received varying amounts of gold salts up to the time of institution of therapy with pituitary adrenocorticotropic hormone. Eight of these (80 per cent) obtained either complete remission or a major degree of improvement. One of the eight patients has maintained a remission for 229 days after discontinuing therapy with the hormone.

Of the remaining 33 patients, some had received gold therapy at some previous time, but not for periods of three months to five years prior to the institution of treatment with pituitary adrenocorticotropic hormone; the others had never received gold therapy either prior to or after institution of the hormone. Of these, 20 patients (61 per cent) obtained either a complete remission or a major degree of improvement. The highest percentage of cases obtaining complete remissions or major degrees of improvement occurred in the groups which had received chrysotherapy either concurrently with or right up to the time of institution of therapy with the hormone.

It may be significant that, of the seven patients in whom use of the hormone could be discontinued without development of a relapse, all had received chrysotherapy either concurrently with or up to the time of institution of hormone treatment. The number of instances in any of these categories is small, however, and so the material is not adequate for definitive statistical analysis. We point out these results, however, to indicate the possibility of the value of chrysotherapy either concurrently with pituitary adrenocorticotropic hormone or the institution of treatment with the hormone after a period of administration of gold.

It is obvious that if these preliminary observations should prove significant, the employment of chrysotherapy along with pituitary adrenocorticotropic hormone would point to one possible means of using the hormone for only a limited time with possible maintenance of the remission subsequently.

That the use of the hormone for limited periods only is a real advantage seems indicated by the facts that improvement is not always maintained after long-continued administration and that clinical relapse may occur, even in patients who initially showed satisfactory improvement. Nor is intermittent therapy the solution, for it is sometimes impossible to reproduce the degree of remission obtained with the first course of treatment with the hormone even when the same, or even a higher, dose is employed in the subsequent course of treatment.

It is, of course, possible that some of the patients who had received chrysotherapy with pituitary adrenocorticotropic hormone would have responded equally well to gold therapy alone. Even if it may be assumed that a similar result might eventually have been obtained with chrysotherapy alone, we were impressed with the value of the addition of the hormone. We may regard its addition to chrysotherapy as a "holding action" designed to prevent further structural deterioration and deformities and to induce immediate functional rehabilitation, months before gold therapy is far enough advanced to assert its possible benefit.

7. Determinations of serum sodium, potassium and urinary ketosteroids were performed in the laboratory of Dr. T. S. Danowski. Miss F. G. McGarvey was responsible for the technical procedures that were carried out.

LABORATORY DATA

Metabolic Studies.—In all cases glucose tolerance determinations were made prior to the institution of pituitary adrenocorticotropic hormone and at varying intervals afterward. Urate and creatinine excretion in 24 hour specimens of urine were observed in a number of the patients prior to administration of the hormone and for a period after institution of treatment. Serum albumin and globulin determinations were made in a number of patients, and in several instances determinations of serum chloride, potassium, sodium, and urinary ketosteroids were made.[7]

Hematological Studies.—Total blood counts, including differential counts in smears, and counts of the circulating eosinophils were made in all instances. Sedimentation rates were determined in all instances by the Cutler method prior to the institution of treatment and at various periods in the course of treatment.

Results of Metabolic Studies.—We observed no consistent increase in the urate and creatinine excretion in the course of treatment, even when large doses of the hormone were administered. In those instances in which the urate and creatinine excretion was increased after the administration of the hormone, there was no relation between these findings and the clinical effects.

Results of Hematological Studies.—The striking changes in the hematological picture were the following: There was a decrease or absolute disappearance of circulating eosinophils in most instances studied. There was no relation between the degree of eosinopenia and the clinical response to treatment. In many instances in which the number of circulating eosinophils decreased markedly or disappeared entirely when maximum doses of pituitary adrenocorticotropic hormone were given, the circulating eosinophil count returned to a higher level (though not always the pretreatment level) when smaller maintenance doses of the hormone were administered, even when the patient maintained complete remission or major degrees of improvement.

After a period of administration of the hormone, there occurred in the majority of instances a significant increase in the hemoglobin concentration and total erythrocyte count, even though these patients received no hematinics.

Sedimentation rates, which were accelerated in practically all instances, returned to normal levels promptly under treatment with initially large doses of pituitary adrenocorticotropic hormone. In many instances the normal sedimentation rate developed within a matter of days after institution of treatment and generally paralleled the rapid improvement in the clinical activity of the arthritis (chart 1). In 15 of the 56 instances, however, the sedimentation rate again became more rapid, even though it did not always attain the pretreatment level, when smaller maintenance doses of the hormone were given. In such cases we did not observe complete correlation between the accelerated sedimentation rate and the clinical state of the patient, a

number of the patients being clinically in a state of remission or showing major improvement when the sedimentation rate was abnormally accelerated.

SIDE EFFECTS

Table 12 lists the incidence of the side effects observed. Twenty-eight patients, half of the number studied, showed no side effects of any type. The remaining patients showed either a single abnormality or several abnormalities simultaneously. In most instances the side effects were not of any clinical importance, the patient himself being hardly aware of the abnormality, which could be readily observed by the examiner; for example, pigmentation, slight hirsutism, slight degrees of edema or acne, rounding of the face. Of special interest were the patients in whom hypertension, hyperglycemia and glycosuria, osteoporosis, mental depression and cerebral confusion developed.

Hypertension.—Some degree of hypertension developed in six patients under treatment; in five of these the degree was very slight and varied in severity from time to time, generally disappearing when the dose of pituitary adrenocorticotropic hormone was reduced; the normal blood pressure level returned in all instances when use of the hormone was totally discontinued.

TABLE 12.—*Side Effects During Treatment with Pituitary Adrenocorticotropic Hormone in Rheumatoid Arthritis*

Abnormality	Number
Pigmentation	18
Rounding of face	15
Edema	10
Nervousness	9
Acne	7
Hypertension	6
Hyperglycemia and glycosuria	3
Headache	3
Weakness	3
Hirsutism	2
Osteoporosis	4
Loss of hair	1
Amenorrhea	1
Mental depression	1
Cerebral confusion	1

In the sixth case (chart 2), that of a white man aged 38 with rheumatoid arthritis of one year's duration, the initial blood pressure was 110/70. Sixty mg. of the hormone was administered daily from Feb. 10, 1950, and within a short time marked improvement in the arthritis developed. The dose was gradually reduced to 20 mg. daily, with continued maintenance of improvement. Twenty-nine days after treatment was begun (March 11, 1950) elevation of the blood pressure to 140/100 was noted for the first time. Because of some increase in arthritic manifestations, the dose was increased to 30 mg. daily, with effective remission resulting. One week later (March 18) the blood pressure was recorded as 166/110. Pituitary adrenocorticotropic hormone was continued at the dose of 20 to 30 mg. daily, and the blood pressure remained at 150/110. On March 30, treatment was discontinued. Within 24 hours the blood pressure dropped to 120/82. An abrupt and severe relapse developed. Therapy with the hormone was again instituted with a dose of 40 mg. daily. Within one week there was an elevation of blood pressure to 180/110. The dose of pituitary adrenocorticotropic hormone was gradually reduced 40 mg. every third day, with maintenance of remission in the arthritis. Despite the reduction in dose, however, the blood pressure remained between 150/100 and 180/120. On June 10, the hormone was again discontinued, and on June 16 the blood pressure had dropped to 138/100. Recurrence of the arthritic manifestations reappeared eight days after discontinuance of treatment. Administration of the hormone was resumed again on June 24, doses of 30 mg. being given every third day with accompanying reduction in blood pressure to 130/80 and persistence of the remission. One week later the dose was again reduced, to 15 mg. every fourth day, with continued maintenance of normal blood pressure and remission. In this case gold therapy was started at the institution of treatment with pituitary adrenocorticotropic hormone, and by August 11 a total of 995 mg. had been administered. The patient returned to full employment as a mill worker about one month after institution of treatment and has been able to continue at work uninterruptedly.

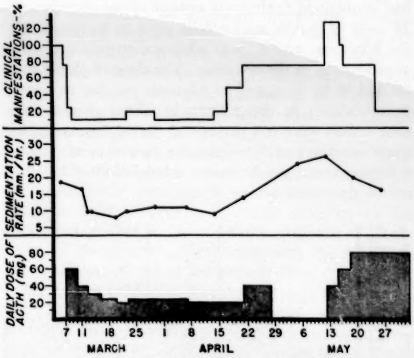


Chart 1.—Relationship of clinical status to dosage of pituitary adrenocorticotropic hormone and duration of treatment (patient K. T.).

Changes in Glucose Tolerance, Hyperglycemia and Glycosuria.—Standard glucose tolerance curves were studied in 17 cases before and at varying intervals during hormone therapy (chart 3). In ten patients glucose tolerance was normal before and was reduced during treatment. Only two of these patients showed glycosuria. Four patients showed impaired glucose tolerance both before and after pituitary adrenocorticotropic hormone administration. Two of these showed

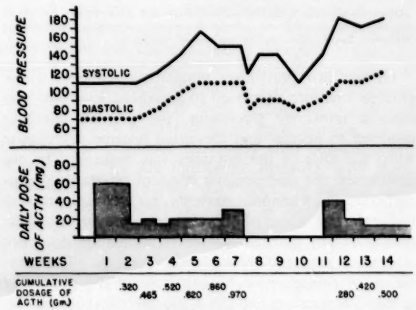

BLOOD PRESSURE
SYSTOLIC
DIASTOLIC
DAILY DOSE OF ACTH (mg.)
WEEKS 1 2 3 4 5 6 7 8 9 10 11 12 13 14
CUMULATIVE DOSAGE OF ACTH (Gm.)
.320 .465 .520 .620 .860 .970 .280 .420 .500

Chart 2.—Hypertension following administration of pituitary adrenocorticotropic hormone (patient F. P.).

a further reduced tolerance while receiving the hormone. In none of these did glycosuria develop. One patient had a normal glucose tolerance curve both before and after treatment; one had a diabetic curve before hormone therapy, which became normal during treatment. Another patient on whom glucose tolerance tests were not done was a known diabetic who had maintained fairly good control of his diabetes with 35 units of globin insulin daily prior to treatment with the hormone, which was adequate to produce major improvement in the arthritis. The dose of globin insulin had to be increased to 55 units per day to control the diabetes. In the patients in whom glucose tolerance curves were not performed during treatment, frequent examination of the urine in the course of pituitary adrenocorticotropic hormone administration failed to reveal glycosuria at any time.

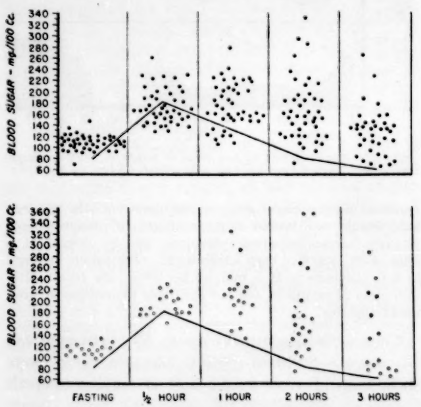


Chart 3.—Glucose tolerance curves before and after varying periods of administration of pituitary adrenocorticotropic hormone; upper, before treatment; lower, after varying periods of treatment.

Of the two previously nondiabetic patients whose glucose tolerance decreased to a diabetic level and who showed transitory glycosuria, the glucose tolerance returned to normal and the urine became aglycosuric when the dose of the hormone was reduced. In our experience, the diabetogenic effect of pituitary adrenocorticotropic hormone presents no serious problem under the conditions of clinical usage, provided that the patient is not diabetic before treatment or does not present a strong diabetic family history. The physician, of course, must be cognizant of the possibility of this complication and check glucose tolerance curves, determine the fasting blood sugar from time to time or test 24 hour collections of urine for sugar.

8. Sprague, R. G.; Power, M. H.; Mason, H. L.; Albert, A.; Mathieson, D. R.; Hench, P. S.; Kendall, E. C.; Slocumb, C. H., and Polley, H. F.: Observations on the Physiologic Effects of Cortisone and ACTH in Man, Arch. Int. Med. **85**: 199-258 (Feb.) 1950.

9. Hoefer, P. F. A., and Glaser, G. H.: Effects of Pituitary Adrenocorticotropic Hormone (ACTH) Therapy: Electroencephalographic and Neuropsychiatric Changes in 15 Patients, J. A. M. A. **143**: 620-624 (June 17) 1950.

Osteoporosis of the Spine.—In four of our patients, three women and one man, their ages ranging from 57 to 73 years, severe lumbar and dorsal backache developed. In two of the patients, the backache was agonizingly painful and was associated with violent muscle spasm, which was aggravated by the slightest movement.

Roentgenograms of the thoracic and lumbar portions of the spine in these patients showed varying degrees of diffuse spinal osteoporosis, associated with some degree of incidental osteoarthritis. In one of the patients the spinal osteoporosis was known to have existed for several years prior to the administration of the hormone. On discontinuance of treatment with the hormone and with complete rest in recumbency and the administration of analgesics and testosterone propionate the muscle spasm and pain subsided. One patient, in whom moderate compression of one lumbar vertebra developed, still has considerable discomfort despite immobilization by an adequate brace. In view of the significant increases in urinary calcium and phosphorus which occurred during administration of the hormone and the rather marked increases in excretion of fecal calcium and phosphorus in the cases studied by Sprague,[8] we have reason to suspect a relationship between the symptoms induced by the osteoporosis in our four cases and their treatment with pituitary adrenocorticotropic hormone.

The relative frequency and seriousness of this side effect of the hormone has impressed on us the necessity of routine preliminary roentgen study of the spine in patients over 50 years of age who are candidates for treatment with pituitary adrenocorticotropic hormone.

Psychological Effects.—A psychoneurotic man 54 years of age, with a marked dependency trait, consulted us because of a rheumatoid spondylitis and psoriasis. After several days of treatment with 80 mg. of the hormone daily, he manifested striking clinical improvement in the arthritis as well as the psoriasis and became moderately euphoric. Shortly after discharge from the hospital, however, he became "jittery," morose and melancholic and cried a great deal. Treatment was discontinued, and the patient's depression largely abated.

Nine patients complained of "nervousness," which, however, was not very disturbing. We have frequently observed mild degrees of euphoria generally explicable by the degree of relief from pain and disability. In one patient with cerebral arteriosclerosis, the mental confusion induced by the hormone simulated closely the picture of alcoholic intoxication. The mechanism of its production is not entirely clear.

We have noted no other gross significant psychological abnormalities, such as have been described by others.[9] A detailed study of the psychological effects of pituitary adrenocorticotropic hormone in a group of our patients treated for rheumatoid arthritis has been conducted at the Staunton Clinic of the University of Pittsburgh by Dr. James T. McLaughlin Jr. and his associates. The results of this investigation will be published later.

V 14
1951

Changes in Sociopsychic Equilibrium.—At this time we can only mention the manifold sociopsychic effects noted in patients treated with the substance and in their families.[10]

This aspect of the problem deserves a great deal of further consideration and study. We have noted that any major or rapid shift in clinical status of the patient may require adjustment on the part of the patient and his family, and serious disturbances in the sociopsychic equilibrium have occurred when adequate preparation for such adjustment was not provided.

COMMENT

The striking and generally prompt reversal of activity of the rheumatic state by pituitary adrenocorticotropic hormone (ACTH) described by other observers was confirmed. Optimum results were observed when administration occurred at six hour intervals. When for practical reasons the intervals were increased to eight hours, some degree of relapse was generally noted. With intervals of twelve hours between injections, further lessening of the clinical effectiveness of the hormone was apparent and relapses developed unless inordinately large doses were given.

Our observations indicate that the greatest degree of improvement is obtained in patients with early, mild or moderately severe rheumatoid arthritis, without serious capsular contractures or deformities, who require relatively small doses of the hormone and for whom the dose can eventually be reduced to practically minute amounts and for some entirely discontinued. It may be argued that some of these patients might do as well with simpler comprehensive regimens of treatment without pituitary adrenocorticotropic hormone. That may be true. However, the almost immediate functional rehabilitation of this group of patients with small doses of the substance is in itself a sufficient gain to justify the addition of the hormone to the general armamentarium of therapy. Some patients have returned to work within a week or 10 days after initiation of treatment, with obvious economic advantages. The relief from discomfort, the decreased tendency toward the development of muscular and capsular contractures, the encouragement of the patient with regard to the possibility for help—all these factors more than compensate for the difficulty and expense attendant on the use of the substance.

In general, we have been impressed with the infrequency of serious undesirable "side effects" from pituitary adrenocorticotropic hormone. The most significant side reactions we have observed were hypertension, the tendency toward development of a diabetogenic state and the possible development or aggravation of spinal osteoporosis. Our findings suggest that patients past 50 years of age should have a roentgen examination of the spine routinely prior to administration of the hormone to rule out the existence of asymptomatic osteoporosis. Such patients should be examined from time to time, especially if they complain of pain in the back. Relatively infrequent psychic abnormalities apparently represented an accentuation of the patient's basic personality difficulty.

The effect of pituitary adrenocorticotropic hormone given alone generally persists only as long as the substance is administered, relapses developing either immediately or shortly after cessation of treatment.

Our findings also indicate a marked tendency toward deterioration in the degree of improvement with long-continued administration. This is especially true in persons with severe or advanced rheumatoid arthritis. The effect of long-continued administration, with the increased tendency toward production of undesirable "side effects" and deterioration of the degree of benefit obtained immediately after institution of treatment, introduces many serious problems that will require further investigation.

It is possible that variability in the results of treatment with the hormone may be related to variation in the antiarthritic potency of various batches of the hormone used. There is no direct evidence to this effect, but neither is there definite evidence of correlation of therapeutic effectiveness with the results of assays as carried out at the present time.

Any strain-producing mechanism, such as a respiratory infection, fatigue and emotional stress, either decreases the degree of improvement or induces a complete relapse. This is especially true in patients who have received treatment for a long time. It appears that with long periods of administration of the hormone the patient becomes less capable of coping adequately with any superimposed strain. This inability to react may be related to the specific, fixed allowance of the substance administered, which inhibits endogenous pituitary adrenocorticotropic hormone production. The advantage gained from the added stimulation of adrenocorticosteroid production may be to an extent counteracted by the suppressive effect on the anterior pituitary gland, eliminating the automatic, endogenous response of the anterior pituitary to additional stress.

The possible advantage of simultaneous administration of pituitary adrenocorticotropic hormone and chrysotherapy is suggested by our observation of the development and maintenance of complete remissions in seven patients so treated, in whom administration of the hormone has been discontinued entirely for periods ranging from 30 to 229 days without relapse of the arthritis. Much further study of these possible means of using the substance effectively with chrysotherapy is required. We are impressed, however, with these preliminary observations which stand in striking contrast to the discouraging aspect of relapse in many instances under long-continued therapy with the hormone alone.

Although we were interested in observing primarily the effect of pituitary adrenocorticotropic hormone on the rheumatoid process, it is obvious that in clinical management one should not eliminate the well tried general measures of treatment, especially physical therapy and the measures employed to prevent or correct deformity. The relief from pain and subsidence of the inflammatory process should, in fact, be exploited for the increase in muscle tone and strength which may be obtained through appropriate active exercises.

10. Richardson, H. B.: Patients Have Families, New York, Commonwealth Fund, 1945.

INDICATIONS FOR BISHYDROXYCOUMARIN (DICUMAROL®) IN ACUTE MYOCARDIAL INFARCTION

Henry I. Russek, M.D.
Burton L. Zohman, M.D.
LaVere G. White, M.D.
and
Alexander A. Doerner, M.D., Staten Island, N. Y.

The data reported by Wright, Marple and Beck [1] indicate that the mortality rate and incidence of thromboembolic complications in acute myocardial infarction are significantly lower among patients treated with anticoagulants than among those managed solely by conventional methods. Thus, in a control group 23.4 per cent of the patients died as compared with only 16 per cent in a similar series of treated patients. Similarly, the rate of thromboembolic complications recognized clinically was 41.8 per cent in the control group and only 13.1 per cent in the patients receiving bishydroxycoumarin (dicumarol®). From these significant statistical differences, Wright and his associates concluded that it is important to give anticoagulant therapy to all patients with coronary occlusion and myocardial infarction, "since it is impossible to predict from the condition of the patient during the first week whether thromboembolic complications will develop during subsequent weeks and whether death will occur from them."

Although this conclusion may be justified, it seemed worth while for us to investigate the actual risk involved in the treatment of uncomplicated cases of acute myocardial infarction by conventional methods alone. The mortality rate from the acute attack (i. e., within four to six weeks after onset) has been reported by many observers [2] in figures ranging from 16.5 to 50 per cent, but it is probable that a fatal outcome occurs in no more than 10 per cent of patients suffering their first episode.[3] A mortality rate of only 8 per cent was reported by Master, Jaffe and Dack [2d] in their series of patients with first infarctions. From purely clinical impression, moreover, it appeared to us that the incidence of complications and death is strikingly low in patients who do not present serious signs and symptoms at the beginning of a first attack of acute myocardial infarction. Furthermore, inasmuch as an appreciable percentage of the deaths in this disease occurs within the first 48 hours, before bishydroxycoumarin has exerted significant therapeutic effect, such fatalities cannot be regarded as preventable by this form of treatment. Similarly, when account is taken of deaths arising from other than thromboembolic complications (prolonged shock, congestive heart failure, rupture of the heart, bronchopneumonia and other complicating diseases), the preventable mortality resulting from prolongation of prothrombin time in patients with a first attack of acute myocardial infarction may be considerably lower than the gross statistics indicate. If this is so, the possible benefit to be derived from the use of bishydroxycoumarin in selected patients may be small or negligible when weighed against the hazards of hemorrhage inherent in this form of treatment. On the other hand, if significant mortality and incidence of thromboembolism do exist even in seemingly benign instances of acute myocardial infarction, the routine administration of this drug in all patients, as advocated by Wright and associates, might prove to be logical.

The object of this study, therefore, was to determine the results of conservative therapy in patients sustaining a first attack of acute myocardial infarction who on admission to the hospital presented no unfavorable prognostic signs or symptoms. In order to select such cases for analysis, we established the following criteria as indicative of a guarded prognosis: (1) previous myocardial infarction, (2) intractable pain, (3) extreme degree or persistence of shock, (4) significant enlargement of the heart, (5) gallop rhythm, (6) congestive heart failure, (7) auricular fibrillation or flutter, ventricular tachycardia or intraventricular block and (8) diabetic acidosis, or other complicating serious disease states. Patients who showed none of these symptoms on the first day of hospitalization were classified as "good risks," to distinguish them from the "poor risk" group, which manifested one or more of these unfavorable prognostic signs.

COMPOSITION OF SAMPLE

The material for study was derived from two independent sources, the United States Marine Hospital in Staten Island, N. Y., and the Maimonides Hospital in Brooklyn. An analysis was made of 201 consecutive patients admitted for acute myocardial infarction at the former institution and of 223 at the latter. As we had anticipated, these sources provided variation in sampling. The patients at the Marine Hospital were generally of excellent physical makeup and were accustomed to a strenuous type of existence. Three of the 201 subjects were women. The age range in this group was 34 to 76 years with an average age of 53.5 years. Forty-three of the patients were over the age of 60 years. The patients treated at the Maimonides Hospital, on the other hand, were a typically urban group, the majority of whom had led a more sedentary life. The age range in these patients was 30 to 78 years, and the average age, 55.7, was 2.2 years more than the mean age in the former series. Ninety-three of these patients were over the age of 60 years. More of the patients in the Maimonides group had had a previous myocardial infarction than those in the Marine Hospital series. There was also a much higher incidence

As a Joint Project with the National Heart Institute, United States Public Health Service, Washington, D. C.

From the Cardiovascular Research Unit, Department of Medicine, United States Marine Hospital, Consultants in Cardiovascular Disease (Drs. Russek and Zohman), Chief of Medicine (Dr. Doerner) and Resident Physician (Dr. White).

1. Wright, I. S.; Marple, C. D., and Beck, D. F.: The Use of Anticoagulants in the Treatment of Myocardial Infarction, Mod. Concepts Cardiovasc. Dis. **18**: 55-56 (Dec.) 1949.

2. (*a*) Cooksey, W. B.: Coronary Thrombosis: Follow-Up Studies with Especial Reference to Prognosis, J. A. M. A. **104**: 2063-2065 (June 8) 1935. (*b*) Woods, R. M., and Barnes, A. R.: Factors Influencing Immediate Mortality After Acute Coronary Occlusion, Am. Heart J. **24**: 4-16 (July) 1942. (*c*) Bland, E. F., and White, P. D.: Coronary Thrombosis (with Myocardial Infarction) 10 Years Later, J. A. M. A. **117**: 1171-1173 (Oct. 4) 1941. (*d*) Master, A. M.; Jaffe, H. L., and Dack, S.: Treatment and Immediate Prognosis of Coronary Artery Thrombosis, 267 Attacks, Am. Heart J. **12**: 549-562 (Nov.) 1936.

3. Friedberg, C. K.: Diseases of the Heart, Philadelphia, W. B. Saunders Company, 1949, p. 476.

of diabetes in the former group, which included 51 women in the total of 223 patients. In every instance the clinical diagnosis of acute myocardial infarction was confirmed by one or more electrocardiograms. All the patients in this study were treated by conservative methods without the use of anticoagulants.

RESULTS

Of the 424 patients in the combined series, there were 103 deaths during the period of hospitalization, or an over-all mortality rate of 24.3 per cent (table). The death rate was, therefore, almost identical with that in the control series reported by Wright and associates.[1] Clinical thromboembolic phenomena occurred in 19 patients, or 4.5 per cent of the total series. There were 204 patients who were classified as "good risks," because during the first 24 hours of hospitalization they presented none of the criteria previously referred to as warranting a guarded prognosis. In these 204 selected patients with acute myocardial infarction, there were only five deaths and the resultant mortality rate was 2.45 per cent. Three of these deaths, moreover, could not be regarded as preventable with bishydroxycoumarin therapy. In one patient, rupture of the left ventricle was found at necropsy, and there was no indication that thromboembolism had contributed to this death. In the other two patients who died, death occurred less than 48 hours after their admission to the hospital. The incidence of theoretically preventable deaths in this "good risk" group therefore was only two out of 204 patients, or less than 1 per cent. Similarly, thromboembolism occurred in only two of the 204 selected patients (0.98 per cent) and was responsible for only one death.

Mortality Rate and Incidence of Thromboembolic Complications

	No. Cases	Mortality		Embolization	
		No.	Percentage	No.	Percentage
Total	424	103	24.3	19	4.5
"Good risk"	204	5	2.45	2	0.98
"Poor risk"	220	98	44.5	17	7.7

In striking contrast to these figures were the 98 deaths among the 220 "poor risk" patients who manifested unfavorable prognostic signs. The mortality rate for this group was therefore 44.5 per cent. In these patients, moreover, there were 17 clinical thromboembolic complications, or 7.7 per cent (table).

COMMENT

It has been recognized that a number of factors exert an influence on the outcome from acute myocardial infarction. Clinical observation has shown that the mortality rate is high when there has been a previous cardiac infarct or when certain unfavorable signs or symptoms develop after the onset of the acute attack. Thus, in our study, the mortality rate was found to be 44.5 per cent in a group of 220 patients who were classified as "poor risks." On the other hand, at the time of this writing little or no statistical data have been presented in the literature concerning the outlook for the patient with a first episode of myocardial infarction who manifests none of these adverse signs and recovers quickly from the initial symptoms indicating the onset of the acute attack. In our analysis of 204 patients in whom no unfavorable criteria for recovery appeared within the first 24 hours of hospitalization, the mortality rate was only 2.45 per cent. Furthermore, when allowance was made for those deaths that obviously could not have been avoided by bishydroxycoumarin, the theoretically preventable mortality rate was computed at less than 1 per cent. The incidence of thromboembolism was also less than 1 per cent.

These observations, therefore, appear to cast doubt on the advisability of administration of bishydroxycoumarin to all patients with acute myocardial infarction. We agree that the hazards from hemorrhage are not sufficient to contraindicate the use of anticoagulants in the more serious cases of coronary occlusion. In "good risk" patients treated conservatively, however, the mortality rate and frequency of thromboembolic complications do not, in our opinion, justify the calculated risk from the use of bishydroxycoumarin. The danger to life from the use of this drug, even when "adequate" facilities for laboratory and clinical control exist, is probably greater than reports have thus far revealed.

From these observations, it would seem logical to employ bishydroxycoumarin only in those patients in whom unfavorable prognostic signs are observed. When the latter signs develop at the onset of the acute attack or during the initial convalescent period while the patient is confined to bed, combined heparin sodium and bishydroxycoumarin therapy instituted without delay would seem to be indicated unless a definite contraindication exists.

Numerous reports in the literature have emphasized that the prognosis of an acute attack of myocardial infarction becomes progressively serious with increase of age.[4] Our analysis of the prognosis (to be reported) will show, however, that the elderly patient has as good a chance to recover from acute myocardial infarction as the younger patient who has sustained an attack of equal severity. Prognosis in the individual patient at any age depends largely on the presence or absence of signs of a failing circulation or other ominous symptoms. Since more "poor risk" patients are over the age of 60 years, age itself influences the mortality only in a broadly statistical manner and has no bearing on prognosis in the individual patient.

SUMMARY AND CONCLUSIONS

Although gross statistics in unselected patients with acute myocardial infarction have demonstrated that benefit may be derived from anticoagulant therapy, there has been no strong evidence to support the recommendation that such treatment be instituted routinely in all patients with this disease. An analysis was, therefore, undertaken to determine the actual risk to life in patients treated by conservative methods who suffer a first attack of acute myocardial infarction without the advent of serious signs or symptoms within the

4. Woods and Barnes.[2b] Rathe, H. W.: Myocardial Infarction: Clinical Features and Prognosis, J. A. M. A. **120**: 99-103 (Sept. 12) 1942. Levine, S. A.: Coronary Thrombosis: Its Various Clinical Features, Medicine **8**: 245-418 (Sept.) 1929. Hellmuth, G. A.: Prognosis of Acute Coronary Heart Disease, Illinois M. J. **92**: 86-90 (Aug.) 1947.

first 24 hours of hospitalization. The mortality rate for 204 of these patients was 2.45 per cent, and the theoretically preventable mortality rate with bishydroxycoumarin (dicumarol®) was only 0.98 per cent. The incidence of thromboembolism in this group was also less than 1 per cent.

Since the administration of bishydroxycoumarin according to present hospital methods is associated with rates of morbidity and mortality from hemorrhagic complications in excess of these figures, this drug should be reserved for patients with myocardial infarction who manifest evidence of failing circulation or other serious prognostic signs. For 220 "poor risk" patients in this series the mortality rate was 44.5 per cent and the incidence of clinical thromboembolic complications was 7.7 per cent.

We therefore conclude:

1. Bishydroxycoumarin therapy should not be a routine procedure in the treatment of all patients with acute myocardial infarction.

2. Selection of patients for anticoagulant therapy should be based on certain known prognostic criteria.

3. In an individual patient, age is not a significant factor in the immediate outcome of acute myocardial infarction. Consequently, age should not be considered an important factor indicating or contraindicating the use of anticoagulants.

SALT DEPLETION SYNDROME ASSOCIATED WITH DECOMPENSATED CIRRHOSIS OF THE LIVER

Howard L. Holley, M.D.
and
James S. McLester, M.D., Birmingham, Ala.

The efficacy of salt-free diets in congestive heart failure has been well established. These diets are also widely used in hypertension, and varying reports as to their effectiveness have been made. Such dietary restrictions, however, have not been found to be as innocuous as was assumed. Soloff and Zatuchni [1] and MacGuire [2] have shown that severe complications and death may result from sodium depletion procedures. Schroeder has described patients in whom uremia developed during treatment of hypertension with the salt-free diet.[3] In fact, Schroeder first suggested that the depletion syndrome be given the title of "low salt syndrome." Two deaths occurred in his series.

From the Department of Medicine, The Medical College of Alabama.

1. Soloff, L. A., and Zatuchni, J.: Syndrome of Salt Depletion Induced by Regimen of Sodium Restriction and Sodium Diuresis, J. A. M. A. **139**: 1136 (April 23) 1949.

2. MacGuire, W. B., Jr.: Risk of Uremia Due to Sodium Depletion, J. A. M. A. **137**: 1377 (Aug. 14) 1948.

3. Schroeder, H. A.: Renal Failure Associated with Low Extracellular Sodium Chloride: Low Salt Syndrome, J. A. M. A. **141**: 117 (Sept. 10) 1949.

4. Chasis, H.; Goldring, W.; Breed, E.; Bolomey, A., and Smith, H. W.: Effects of Salt and Protein Restriction on Blood Pressure and Renal Hemodynamics in Hypertensive Patients, abstracted, J. Clin. Investigation **28**: 775 (July) 1949.

5. Elkinton, J. R., and Winkler, A. W.: Transfers of Intracellular Potassium in Experimental Dehydration, J. Clin. Investigation **23**: 93 (Jan.) 1944.

It has been found that depletion of the salt content of the extracellular fluid will cause a decrease in glomerular flow and that this alteration in renal dynamics will result in nitrogen retention.[4] This complication is likelier to occur in patients who are handicapped by underlying renal damage.

A salt depletion syndrome has been produced experimentally in dogs. Elkinton injected intraperitoneally 150 cc. of a 5 per cent dextrose solution per kilogram of body weight and withdrew the same amount of fluid four hours later.[5] Within four hours, symptoms of salt depletion were produced. The clinical picture of this syndrome simulates that of adrenal cortex insufficiency. The symptoms include apathy, anorexia and nausea. Thirst is not a prominent feature; cramps of muscles and abdominal pain appear to be outstanding symptoms; cardiac output is decreased; arterial pressure is low; circulation time is prolonged, and peripheral resistance is elevated.

The removal of large amounts of fluid from the abdominal cavity, as is often done in cirrhosis of the liver, seriously depletes the extracellular fluid of its electrolyte content. The fluid of the extracellular compartment then becomes relatively hypotonic, and, therefore, water does not leave the intracellular space as it does in primary water depletion. In the latter syndrome, water is furnished by the intracellular compartment, so that the isotonicity of the extracellular fluids is reestablished. If water is then administered to the patient with salt deficiency, fluid may actually enter the intracellular space. This increases the depletion of the extracellular electrolytes and results in an exacerbation of the symptoms.

After the report of this experimental work, we studied two patients with decompensated cirrhosis of the liver who displayed symptoms similar to those described in the salt deficiency syndromes produced in dogs. The occurrence of these symptoms was noted after the repeated removal of large amounts of ascitic fluid.

REPORT OF CASES

CASE 1.—The first patient, a 47 year old white man, was first seen in the outpatient clinic with the chief complaint of swelling of the abdomen. There was free abdominal fluid with edema of the lower extremities. A diagnosis of cirrhosis of the liver was made, which was confirmed by punch biopsy. The patient was put on a low salt diet and given weekly mercurial diuretic injections. During 30 days of this treatment no improvement was seen. He was then admitted to the hospital, and paracentesis was performed with removal of 2,500 cc. of clear fluid. The fluid had the characteristics of a transudate. The sodium level of the blood plasma was determined and found to be 133 milliequivalents; the plasma chloride was 88 milliequivalents. Examination of the ascitic fluid for sodium and chloride revealed values similar to those found in the blood plasma. Repeated paracenteses were done over a period of one week, during which time a total of about 6 liters of fluid was removed. Seventy-two hours after the last paracentesis, oliguria developed, together with severe lassitude, apathy, anorexia and occasional nausea. The skin was dry; the muscles were putty-like and the patient complained of pain in the roof of his mouth and the calves of his legs. The blood pressure was 100/70 on admission and showed no significant change at this time. At no time was there any evidence of shock. The serum sodium was 127 milliequivalents, and the serum chloride had fallen to 78 milliequivalents. A diagnosis of salt depletion syndrome was made, and the intravenous adminis-

tration of 1,000 cc. of a 5 per cent solution of sodium chloride over a six hour period was followed by a dramatic improvement. The output of urine, which had decreased to less than 100 cc. during the previous 12 hours, increased to over 2,000 cc. during the next three hours. The patient became more alert, and the anorexia and nausea disappeared.

CASE 2.—The second patient was a 55 year old white man who had cirrhosis of the liver with a steady accumulation of ascitic fluid. He stated that his earlier treatment, for about six months, had included a salt-free diet and weekly injections of mercurial diuretics. Paracentesis had not previously been considered necessary, but when the patient began to experience severe respiratory embarrassment, removal of the abdominal fluid was decided on. The serum sodium level on admission was 130 and the serum chloride 86 milliequivalents. Two thousand cubic centimeters of fluid was removed by paracentesis. A salt-free diet was continued while the patient was in the hospital. During the remaining week 1,000 cc. of fluid was removed at each of two paracenteses. Forty-eight hours after the last paracentesis there was a decreased output of highly concentrated urine and the patient became disoriented. There was decided apathy and anorexia. The serum contained a sodium level of 124 milliequivalents and a chloride content of 70 milliequivalents. In an attempt to distinguish between primary sodium and primary chloride deficiency, we administered intravenously 500 cc. of an 0.82 per cent ammonium chloride solution during a period of three hours, but there was no improvement in the symptoms. The patient was then given 500 cc. of 5 per cent sodium chloride solution; the response was dramatic. The anorexia, lassitude and disorientation quickly disappeared. It is possible that in the first instance an insufficient amount of ammonium chloride was given, but the patient's condition rapidly became so grave that further experimentation did not seem warranted and the sodium chloride solution was immediately given. We do not believe, therefore, that final conclusions can be drawn from this single experiment.

COMMENT

The treatment of the ascites of cirrhosis of the liver has as a rule been unsatisfactory. A recent report tells of improvement following the institution of low salt diets in 12 of 13 patients who had cirrhosis of the liver with increasing ascites.[6] When the intake of salt was limited to less than 1 Gm. daily, the accumulation of fluid in the abdomen ceased and paracentesis was no longer necessary. Except in one patient the diet was well tolerated for more than three months. In this one patient, nitrogen retention developed and the diet was discontinued; it is possible that a decreased renal glomerular flow as a consequence of decreased sodium content in the extracellular fluids was responsible for the uremia. In the other 12 patients, we assume that the improvement was due, not to a decrease in sodium, but to a conservation of body protein incident to the discontinuance of paracentesis. This resulted in a rise of the serum-albumin level in each case.

Mercurial diuretics have been used to promote diuresis in cirrhosis with ascites. Although this method is of only limited value, it is used routinely in some clinics. The mercurial diuretics enhance the excretion of sodium chloride from the body and thus decrease the tendency for the formation of edema. On which specific ion the mercurial diuretic has its primary inhibiting effect has long been a controversial point. Excretion of the sodium as well as that of the chloride ion is enhanced.[7] The evidence appears to favor the view that the primary inhibiting effect of the diuretic is on the chloride ion, but sodium and potassium as well as chloride are carried out in the urine.

The removal of large amounts of isotonic fluid from a serious cavity will seriously deplete the plasma of electrolytes; this, in turn, especially if frequently repeated, will produce the syndrome complex seen in primary salt depletion. It seems reasonable, therefore, for one to assume that the rigid limitation of sodium chloride intake, combined with the increased excretion of this electrolyte by mercurial diuretics, will produce such a syndrome.

SUMMARY AND CONCLUSIONS

A salt depletion syndrome was produced in two patients with decompensated cirrhosis of the liver by repeated removal of ascitic fluid, and evidence is presented indicating that the use of salt-free diets and mercurial diuretics hastened this deficiency complex. The production of this syndrome may explain the disastrous results that sometimes follow repeated removal of large amounts of ascitic fluid.

EFFECTIVENESS OF SYNTHETIC WATER-SOLUBLE VITAMIN K PREPARATIONS IN BISHYDROXYCOUMARIN-INDUCED HYPOPROTHROMBINEMIA

Ralph S. Overman, Ph.D.
C. W. Sorenson, M.D.
and
Irving S. Wright, M.D., New York

The exact mechanism by which bishydroxycoumarin (dicumarol®) affects the blood coagulation system is still unknown. The similarity in the chemical structure of 3-substituted 4-hydroxycoumarins to vitamin K led the original workers [1] to suggest that bishydroxycoumarin might act by blocking or competing with vitamin K in maintaining prothrombin activity. This hypothesis was supported by animal experiments which demonstrated the similarity of vitamin K deficiency to the biologic response to bishydroxycoumarin [2] and the ability of vitamin K to reverse the action of this drug.[3] However, it was clearly shown that the levels of 2-methyl-1, 4-naphthoquinone necessary to counteract the action of the anticoagulant are considerably larger

6. Kunkel, H. G.; Eisenmenger, W. J., and Ahrens, E. H., Jr.: Effect of Rigid Na Restriction in Patients with Cirrhosis of Liver and Ascites, abstracted, J. Clin. Investigation **28**: 794 (July) 1949.

7. Ray, C. T., and Burch, G. E.: The Mercurial Diuretics, Am. J. M. Sc. **217**: 96 (Jan.) 1949.

Aided by grants from the Kress Foundation, the Lasker, Hampil and Hyde foundations.

Conducted under the auspices of the Committee on Anticoagulants of the American Heart Association.

From the Department of Medicine of Cornell University Medical College and the New York Hospital.

1. Overman, R. S.; Stahmann, M. A., and Link, K. P.: Studies on Hemorrhagic Sweet Clover Disease: The Effect of 2-Methyl-1, 4-Naphthoquinone and *l*-Ascorbic Acid upon the Action of 3,3'-Methylenebis (4-Hydroxycoumarin) on the Prothrombin Time of Rabbits, J. Biol. Chem. **145**: 155, 1942.

2. Black, S.; Overman, R. S.; Elvehjem, C. A., and Link, K. P.: The Effect of Sulfaguanidine on Rat Growth and Plasma Prothrombin, J. Biol. Chem. **145**: 137, 1942. Quick, A. J., and Stefanini, M.: Experimentally Induced Changes in the Prothrombin Level of the Blood, J. Biol. Chem. **175**: 945, 1948.

3. Overman, R. S.; Field, J. B.; Baumann, C. A., and Link, K. P.: Studies on Hemorrhagic Sweet Clover Disease: The Effect of Diet and Vitamin K on the Hypoprothrombinemia Induced by 3,3'-Methylenebis (4-Hydroxycoumarin) in the Rat, J. Nutrition **23**: 589, 1942.

than those required to counteract a dietary deficiency.[1] Vitamin K preparations isolated from alfalfa hay, synthetic vitamin K_1 and several water-soluble derivatives of 2-methyl-1, 4-naphthoquinone were all effective in counteracting the action of bishydroxycoumarin in rats and rabbits.[4]

Lehmann [5] reported in 1942 that minor hemorrhages resulting from bishydroxycoumarin therapy were controlled by the administration of 100 to 200 mg. of the water-soluble 2-methyl-1, 4-naphthoquinone disulfate, which increased the prothrombin index within three to 12 hours. Townsend and Mills [6] reported in the same year that synthetic water-soluble vitamin K counteracted the hypoprothrombinemia produced by bishydroxycoumarin. In 1943, Shapiro [7] showed that large amounts of water-soluble synthetic vitamin K (75 mg. daily) would prevent the hypoprothrombinemia induced by the smallest single effective dose of bishydroxycoumarin if the vitamin were administered simultaneously with the drug on two successive days. The same year, Lehmann [8] reported that hemorrhage, usually no more than oozing, occurred in 27 of 302 patients receiving bishydroxycoumarin and that in 24 of these it was stopped by the oral administration of 100 to 300 mg. of a synthetic vitamin K preparation (methyl naphthoquinone dihydrosulfate). In the other three patients with more profuse hemorrhage, the oral administration of a synthetic vitamin K preparation and the administration of 300 to 400 ml. of fresh blood immediately controlled the hemorrhage.

Cromer and Barker [9] reported a more extensive study with the use of large amounts of menadione sodium bisulfite to counteract excessive prolongation of the prothrombin time resulting from bishydroxycoumarin therapy. Thirty-seven patients on this therapy with excessively prolonged prothrombin times were treated with single doses of 64 mg. of anhydrous menadione sodium bisulfite intravenously. This dose of menadione sodium bisulfite usually started to lower the prothrombin time within two hours and produced its maximum effect in about 18 hours. In 35 of the 37 patients the excessively prolonged prothrombin time was reduced to within what these authors consider the therapeutic range with this single dose. In other patients with comparable excessive prolongation of the prothrombin time who did not receive menadione sodium bisulfite, a period of 48 to 108 hours elapsed before the prothrombin time fell to within the desired therapeutic limits, and the degree of reduction of the prothrombin time was usually not so great as in the treated patients. Varying degrees of response to large doses of vitamin K were noted. In 82 per cent of the patients there was a prompt and striking response to this dose of menadione sodium bisulfite, and the authors believed that even in those patients in whom there was a minimal effect a definite inhibitory action against further lengthening of the prothrombin time by bishydroxycoumarin was accomplished. In three of these patients bleeding had occurred. In two it stopped within a few hours after the administration of the water-soluble vitamin K, and in the other, after the administration of the water-soluble vitamin K and a single transfusion of fresh blood.

These authors emphasized the important point that no attempt was made to restore the prothrombin time to normal, but their object was to reduce the excessively prolonged prothrombin time to the range considered desirable for bishydroxycoumarin therapy.

Bingham [10] in 1941, and Davidson and MacDonald [11] in 1943 reported that the synthetic water-soluble vitamin K preparations were without effect in counteracting the hypoprothrombinemia induced by bishydroxycoumarin. Bingham administered to dogs 1 to 2 mg. daily, and Davidson gave one patient 6.4 mg. and another patient 60 mg. parenterally. These amounts were so low that they probably account for these observations.

Davidson and MacDonald [12] reported that large doses of vitamin K_1 oxide (180 to 250 mg.) counteracted the hypoprothrombinemia produced by bishydroxycoumarin in three out of four patients and suggested that the failure in the fourth patient was probably due to the administration of an inadequate amount of the vitamin. The amount of vitamin K_1 oxide required to produce the desired effect varied considerably from patient to patient. Davidson [13] administered 0.5 to 3 Gm. of vitamin K_1 oxide to 10 patients with prolonged prothrombin times induced by bishydroxycoumarin and confirmed his earlier observations.

Recently James and others [14] and Miller and his associates [15] concluded that water-soluble vitamin K preparations are ineffective in counteracting the hypoprothrombinemia induced by bishydroxycoumarin. They indicated that under their experimental conditions the oil-soluble vitamin K_1 oxide is the only effective material to correct this state.

In view of the implications of these reports, we have recorded the experience in this hospital with the use of the water-soluble vitamin K preparations in the treatment of excessively prolonged prothrombin times occasionally encountered in bishydroxycoumarin therapy.

4. Overman, Stahmann and Link.[1] Overmann, Field, Baumann and Link.[3]

5. Lehmann, J.: Hypo-Prothrombinemia Produced by 3,3'-Methylenebis (4-Hydroxycoumarin) and Its Use in the Treatment of Thrombosis, Science **96**: 345, 1942.

6. Townsend, S. R., and Mills, E. S.: The Effect of the Synthetic Hemorrhagic Agent, 3-3'-Methylenebis (4-Hydroxycoumarin), in Prolonging the Coagulation and Prothrombin Time in the Human Subject, Canad. M. A. J. **46**: 214, 1942.

7. Shapiro, S.; Redish, M. H., and Campbell, H. A.: Prothrombin Studies: III. Effect of Vitamin K upon Hypoprothrombinemia Induced by Dicumarol in Man, Proc. Soc. Exper. Biol. & Med. **52**: 12, 1943.

8. Lehmann, J.: Thrombosis: Treatment and Prevention with Methylenebis (Hydroxycoumarin), Lancet **1**: 611, 1943.

9. Cromer, H. E., Jr., and Barker, N. W.: The Effect of Large Doses of Menadione Bisulfite (Synthetic Vitamin K) on Excessive Hypoprothrombinemia Induced by Dicumarol, Proc. Staff Meet., Mayo Clin. **19**: 217, 1944.

10. Bingham, J. B.; Meyer, O. O., and Pohle, F. J.: Studies on the Hemorrhagic Agent 3,3'-Methylenebis (4-Hydroxycoumarin): I. Its Effect on the Prothrombin and Coagulation Time of the Blood of Dogs and Human Beings, Am. J. M. Sc. **202**: 563, 1941.

11. Davidson, C. S., and MacDonald, H.: A Critical Study of the Action of 3,3'-Methylenebis (4-Hydroxycoumarin) (Dicoumarin), Am. J. M. Sc. **205**: 24, 1943.

12. Davidson, C. S., and MacDonald, H.: The Effect of Vitamin K_1 Oxide on Hypoprothrombinemia Induced by Dicoumarol, New England J. Med. **229**: 353, 1943.

13. Davidson, C. S.; Freed, J. H., and MacDonald, H.: The Effect of Vitamin K_1 Oxide upon the Anticoagulant Properties of Dicumarol, Am. J. M. Sc. **210**: 634, 1945.

14. James, D. F.; Bennett, I. L., Jr.; Scheinberg, P., and Butler, J. J. Clinical Studies on Dicumarol Hypoprothrombinemia and Vitamin K Preparations: Superiority of Vitamin K_1 Oxide over Menadione Sodium Bisulfite U. S. P. and Synkayvite in Reversing Dicumarol Hypoprothrombinemia, Arch. Int. Med. **82**: 632 (June) 1949.

15. Miller, R.; Harvey, W. P., and Finch, C. A.: Antagonism of Dicumarol by Vitamin K Preparations, New England J. Med. **242**: 211, 1950.

V 14
1951

METHOD

Prothrombin Time.—The prothrombin determinations reported here were done by the Link-Shapiro modification of the Quick method. The normal range in this laboratory is 15 plus or minus 1.5 seconds.[16] The prothrombin time on whole (100 per cent) plasma is reported in seconds. It has been reported[17] that the dilution curves (obtained by dilution with 0.85 per cent sodium chloride) of plasma containing bishydroxycoumarin and normal plasma differ. The two curves obtained are not superimposable when the dilutions are adjusted so that comparable percentages of prothrombin should be present in each. The extent of these changes depends on the amount of bishydroxycoumarin administered. This fact and the increased instability[18] of plasma with bishydroxycoumarin (rapid inactivation on standing and greater heat lability) indicate that the action of the anticoagulant is not restricted to an actual decrease in the amount of prothrombin but is also responsible for other unclarified effects. Because of these observations we think that the conversion of the prothrombin time in seconds to percentage prothrombin is not a valid manipulation and only confuses the consideration of the problem.

Cases.—All patients in this hospital in the past three years with a prolonged prothrombin time (100 per cent plasma) of 50 seconds or above during bishydroxycoumarin therapy have been divided into two groups: (*a*) those receiving synthetic water-soluble vitamin K preparations and (*b*) those not treated. A few patients from each group were eliminated because of incomplete data or because they had also received blood transfusions at the time of the prothrombin time prolongation. Otherwise, there has been no selection of the material.

Prothrombin time determinations were done daily and the amount of bishydroxycoumarin administered depended on the prothrombin time for that day. Therefore, if vitamin K was indicated, it was usually given 18 to 24 hours after the last dose of bishydroxycoumarin. Prothrombin times continued to be followed at 24 hour intervals after the administration of vitamin K.

Vitamin K.—The vitamin K preparation was given intravenously, usually in amounts of 72 to 150 mg. The water-soluble compounds used were (1) synkayvite® (tetrasodium-2-methyl-1, 4-naphthohydroquinone diphosphoric ester) and (2) menadione sodium bisulfite (hykinone®).

Observations.—The observations on the 42 cases reviewed are recorded in tables 1 through 5. The amount of bishydroxycoumarin and vitamin K given and the undiluted (100 per cent) prothrombin times are recorded for the four days prior to and for five days after the administration of water-soluble vitamin K. In the control group the same tabulation has been used; the day on which the prothrombin time first became prolonged above 50 seconds and on which bishydroxycoumarin administration was stopped is considered to be the day on which vitamin K would have been given had it been used (K-0 day). It is important that this information should be tabulated for each patient so that the individual response and variation may be noted.

TABLE 1.—*Vitamin K Treated Group 1: Responses of Less than 30 Seconds in 24 Hours*

		Day										Total Bishydroxycoumarin, Mg., −4 to K	Prothrombin Time Change, Sec.	
Case	Therapy	−4*	−3*	−2*	−1*	K†	+1‡	+2‡	+3‡	+4‡	+5‡	Days	24 Hr.	48 Hr.
1	P. T.§	30	34	34	39	45	32	..	42	36	29	...	.....	.....
	Bis.‖	100	100	100	..	..	..	..	..	..	..	300	−13	.....
	K.¶	..	..	..	..	72	..	..	..	72	72	...	.....	.....
8	P. T.§	27	..	..	40	65	44	34	..	24	21	...	.....	.....
	Bis.‖	100	100	100	..	..	..	50	50	100	150	300	−21	−31
	K.¶	..	..	..	..	72	..	..	..	..	..	...	.....	.....
11	P. T.§	..	15	19	50	50	45	69	..	..	25	...	.....	.....
	Bis.‖	..	300	100	100	..	..	..	..	..	..	500	−5	+19
	K.¶	..	..	..	..	72	..	144	..	..	..	...	.....	.....
17	P. T.§	..	..	23	52	63	34	27	21	..	..	...	.....	.....
	Bis.‖	..	300	100	..	..	..	..	..	..	..	400	−29	−46
	K.¶	..	..	..	..	75	..	..	..	..	..	...	.....	.....

The abbreviations in table 1 are used in subsequent tables, and the same explanatory notes as given below are applicable.
* Number of days before vitamin K administered. † Day on which vitamin K administered. ‡ Number of days after vitamin K administered.
§ Prothrombin time (100 per cent plasma) in seconds. ‖ Bishydroxycoumarin in mg. ¶ Water-soluble vitamin K in mg.

Table 1 gives the data on the four patients receiving 72 to 75 mg. of water-soluble vitamin K who showed a response of less than 30 seconds (range 5 to 29 seconds) in the prothrombin time in the first 24 hours after the administration of vitamin K.

Table 2 gives the data pertaining to the 12 patients who received 72 to 75 mg. of water-soluble vitamin K and who showed a response of more than 30 seconds (range 33 to 126 seconds) in the prothrombin time in the first 24 hours after the administration of the vitamin.

This division of the treated patients was made because 30 seconds was the maximum change noted

16. Overman, R. S.; Newman, A. A., and Wright, I. S.: Plasma Prothrombin Times in Normal Human Subjects: Effect of Certain Factors on Prothrombin Time, Am. Heart J. **39**: 56, 1950.
17. Overman, R. S., and others: Studies on Hemorrhagic Sweet Clover Disease: The Effect of 3,3'-Methylenebis (4-Hydroxycoumarin) on the Prothrombin Time of the Plasma of Various Animals, J. Biol. Chem. **142**: 941, 1942.
18. Campbell, H. A.; Smith, W. K.; Roberts, W. L., and Link, K. P.: The Bioassay of Hemorrhagic Concentrates by Following the Prothrombin Level in the Plasma of Rabbit Blood, J. Biol. Chem. **138**: 1, 1941.

in the control group except for one patient. Therefore 12 of 16 patients in the group treated with 72 to 75 mg. had a change in the prothrombin time greater than that in 17 of 18 patients in the control group.

The data for patients treated with 144 mg. or more of water-soluble vitamin K are tabulated in table 3. They showed a prothrombin time of more than 30 seconds (range 50 to 120 seconds) in the first 24 hours.

TABLE 2.—*Vitamin K Treated Group 1: Responses of More than 30 Seconds in 24 Hours*

		Days										Total Bis-hydroxy-coumarin, Mg., 4 to K	Prothrombin Time Change, Sec.	
Case	Therapy	−4	−3	−2	−1	K	+1	+2	+3	+4	+5	Days	24 Hr.	48 Hr.
2	P. T.	..	20	42	58	84	23	28	26	26	30	...	.....	.....
	Bis.	300	300	..	..	..	..	..	..	..	..	600	− 61	− 56
	K.	..	..	..	..	72	..	..	..	..	..	...	.....	.....
3*	P. T.	60	..	90	171	+ 180	54	55	48	..	25	...	.....	.....
	Bis.	..	..	..	..	..	..	..	..	..	25	...	− 126	− 125
	K.	..	..	..	..	72	..	..	..	..	..	...	.....	.....
9	P. T.	..	..	20	..	75	19	26	31	29	25	...	.....	.....
	Bis.	..	300	300	200	..	100	100	100	100	100	800	− 56	− 49
	K.	..	..	..	..	72	..	..	..	..	..	...	.....	.....
12	P. T.	18	24	..	..	67	34	55	59	60	40	...	.....	.....
	Bis.	200	50	..	50	..	50	..	..	..	..	300	− 33	− 12
	K.	..	..	..	..	8	..	..	..	72	72	...	.....	.....
13	P. T.	..	13	32	..	91	46	..	28	19	..	...	.....	.....
	Bis.	300	200	50	..	..	..	..	..	..	..	550	− 45	.....
	K.	..	..	..	..	72	..	..	..	..	..	...	.....	.....
14	P. T.	15	16	..	30	74	25	34	59	53	32	...	.....	.....
	Bis.	..	..	300	200	..	50	100	..	..	50	500	− 49	− 40
	K.	..	..	..	..	72	..	..	..	..	..	...	.....	.....
15	P. T.	..	..	13	22	67	24	33	43	..	33	...	.....	.....
	Bis.	..	..	300	200	..	100	50	..	50	50	500	− 43	− 34
	K.	..	..	..	..	36	..	..	..	..	..	...	.....	.....
18	P. T.	..	15	19	37	57	17	17	20	30	..	...	.....	.....
	Bis.	300	250	200	..	..	..	100	..	..	..	750	− 40	− 40
	K.	..	..	..	..	72	..	..	..	..	..	...	.....	.....
19 *a*	P. T.	..	..	23	70	93	27	35	45	..	..	...	.....	.....
	Bis.	..	300	200	..	..	50	200	..	..	..	500	− 66	− 58
	K.	..	..	..	..	72	..	..	..	..	..	...	.....	.....
19 *c*	P. T.	22	18	21	..	63	27	18	15	13	..	...	.....	.....
	Bis.	100	150	100	50	..	..	..	..	..	..	400	− 36	− 45
	K.	..	..	..	..	75	..	..	..	..	..	...	.....	.....
20	P. T.	..	45	..	..	57	..	19	..	..	..	...	.....	.....
	Bis.	..	..	50	..	..	..	50	50	..	..	50	.....	− 38
	K.	..	..	..	..	37	..	..	..	..	..	...	.....	.....
40	P. T.	..	..	18	58	81	27	..	..	15	15	...	.....	.....
	Bis.	..	300	200	..	..	..	..	..	..	..	500	− 54	.....
	K.	..	..	..	..	72	..	..	..	..	..	...	.....	.....

* Patient received 700 mg. of bishydroxycoumarin in the three days before −4 day.

TABLE 3.—*Vitamin K Treated Group 2: Responses of More than 30 Seconds in 24 Hours*

		Days										Total Bis-hydroxy-coumarin, Mg., 4 to K	Prothrombin Time Change, Sec.	
Case	Therapy	−4	−3	−2	−1	K	+1	+2	+3	+4	+5	Days	24 Hr.	48 Hr.
4	P. T.	30	..	..	..	99	25	16	15	19	..	...	.....	.....
	Bis.	50	100	50	50	..	..	200	100	50	..	250	− 74	− 83
	K.	..	..	..	..	144	..	..	..	..	..	...	.....	.....
5	P. T.	..	..	19	..	+ 180	60	44	..	24	23	...	.....	.....
	Bis.	..	..	300	100	..	..	..	..	..	..	400	− 120	− 135
	K.	..	..	..	..	288	..	..	..	..	..	...	.....	.....
6	P. T.	..	..	..	34	95	17	..	16	15	20	...	.....	.....
	Bis.	..	..	300	100	..	..	..	100	100	100	400	− 78	.....
	K.	..	..	..	..	144	..	..	..	..	..	...	.....	.....
7	P. T.	..	40	..	..	143	41	40	67	48	42	...	.....	.....
	Bis.	..	..	75	75	25	..	..	..	..	..	150	− 102	− 103
	K.	..	..	..	..	144	..	..	..	..	..	...	.....	.....
10	P. T.	18	17	17	59	72	18	..	14	16	15	...	.....	.....
	Bis.	..	300	200	..	..	..	..	..	..	..	500	− 54	.....
	K.	..	..	..	..	144	..	..	..	..	..	...	.....	.....

V 14
1951

The data on the control cases which changed less than 30 seconds (range plus 21 to minus 29 seconds) are tabulated in table 4. Table 5 gives the data on the single control case showing a change in prothrombin time of over 30 seconds (34 seconds) in 24 hours.

Table 6 is a summary of the data. It should be noted that the average amount of bishydroxycoumarin received by the treated groups and the control group is comparable (treated 403 mg., control 379 mg.). The average change in prothrombin time in 24 hours in the treated groups was minus 55 seconds, compared with a change of minus 15 seconds in the control group.

That the change in the treated group is related to the vitamin K administration is further supported by comparison of the minus 45 second change in the patients receiving 72 mg. with the minus 76 second change in those receiving 150 mg. of water-soluble vitamin K. Forty-eight hours after the administration of 72 mg. and 150 mg. of water-soluble vitamin K the change in prothrombin time was minus 43 and minus 87 seconds, respectively. The change in the control group at this time was minus 24 seconds.

TABLE 4.—*Control Group: Changes of Less than 30 Seconds in 24 Hours*

Case	Therapy	Days −4	−3	−2	−1	K-0*	+1	+2	+3	+4	+5	Total Bishydroxycoumarin, Mg., 4 to K-0 Days	Prothrombin Time Change, Sec. 24 Hr.	48 Hr.
23	P. T.	..	23	22	46	86	107	48	46	..	..	...	.....	.....
	Bis.	300	300	300	100	..	..	..	100	..	..	1,000	+21	−38
24	P. T.	..	..	18	33	52	48	36	50	61	..	...	.....	.....
	Bis.	..	200	100	100	..	..	100	..	50	..	400	− 4	−16
25 *a*	P. T.	..	19	25	37	52	25	..	37	31	27	...	.....	.....
	Bis.	..	150	100	..	..	100	50	50	100	50	250	−27	.....
27	P. T.	67	60	..	64	71	52	36	26	..	19	...	.....	.....
	Bis.	..	100	..	100	..	..	..	100	..	..	200	−19	−35
28	P. T.	33	36	40	..	75	46	43	32	36	31	...	.....	.....
	Bis.	100	50	..	100	..	..	..	100	..	100	250	−29	−32
29	P. T.	21	33	36	..	53	31	30	25	21	29	...	.....	.....
	Bis.	200	100	..	..	..	..	..	100	100	100	300	−22	−23
30	P. T.	55	46	55	53	66	46	..	30	33	31	...	.....	.....
	Bis.	..	50	..	50	..	..	..	100	100	100	100	−20	.....
31 *a*	P. T.	34	30	..	..	64	48	34	23	30	..	...	.....	.....
	Bis.	100	75	75	75	..	..	100	100	50	50	325	−16	−30
32 *a*	P. T.	..	40	35	..	63	37	43	45	34	35	...	.....	.....
	Bis.	..	50	50	..	..	50	..	..	50	50	100	−26	−20
32 *b*	P. T.	45	34	35	..	60	44	47	47	46	37	...	.....	.....
	Bis.	..	50	50	50	..	..	50	..	..	..	150	−16	−13
33 *a*	P. T.	..	..	..	43	50	54	31	24	35	..	...	.....	.....
	Bis.	..	..	300	100	..	..	50	100	50	..	400	+ 4	−19
33 *b*	P. T.	31	24	35	..	63	48	41	23	30	..	...	.....	.....
	Bis.	50	100	50	50	..	..	50	50	..	..	250	−15	−22
35	P. T.	14	18	37	48	54	..	55	33	..	24	...	.....	.....
	Bis.	300	400	..	..	..	..	..	..	..	50	700	.....	+ 1
36	P. T.	..	..	..	40	68	42	30	21	23	..	...	.....	.....
	Bis.	..	..	300	..	..	..	50	50	100	..	300	−26	−38
37	P. T.	..	..	..	21	54	48	36	34	31	27	...	.....	.....
	Bis.	..	..	300	200	..	..	50	50	..	..	500	− 6	−18
38	P. T.	..	..	19	42	58	50	..	29	33	..	...	.....	.....
	Bis.	..	350	200	..	..	..	..	..	..	..	500	− 8	.....
39	P. T.	15	17	29	40	50	37	..	..	..	..	...	.....	.....
	Bis.	300	300	150	..	..	..	..	..	..	..	750	−13	.....

* Day on which vitamin K would have been given had it been used; corresponds to K day in treated group.

TABLE 5.—*Control Group: Change of More than 30 Seconds in 24 Hours*

Case	Therapy	Days −4	−3	−2	−1	K-0	+1	+2	+3	+4	+5	Total Bishydroxycoumarin, Mg., 4 to K-0 Days	Prothrombin Time Change, Sec. 24 Hr.	48 Hr.
31 *b*	P. T.	34	23	30	..	76	42	39	34	..	..	...	.....	.....
	Bis.	100	100	50	50	..	50	50	100	..	..	300	−34	−37

COMMENT

Water-soluble vitamin K preparations have been used for about 10 years to counteract the action of bishydroxycoumarin. There are certain modifying factors in the response to these preparations. The amount of bishydroxycoumarin given immediately before the vitamin K and the amount of vitamin K administered are important. Likewise, the simultaneous administration of bishydroxycoumarin with vitamin K profoundly modifies the response. Liver and renal damage also seem to alter the reaction to these compounds. In addition, there seem to be other, not understood, factors that may play a role in and that may be active in the different responses attributed to individual variation. In an evaluation of the effectiveness of vitamin K preparations all these factors must be considered.

In addition, it should be emphasized that the effectiveness of the water-soluble vitamin K preparations should not be compared on a weight basis with the oil-soluble preparations. The amount of 2-methyl-1, 4-napthoquinone present in a given quantity of water-soluble derivative varies with the salt used. Thus,

synkayvite® contains only 41 per cent of the active ingredient 2-methyl-1, 4-napthohydroquinone, while vitamin K_1 oxide contains approximately 100 per cent of the active ingredient. Therefore, one should consider the amount of the active ingredient in comparing the effectiveness of the water-soluble with oil-soluble vitamin K preparations.

The data summarized in table 6 indicate that the water-soluble vitamin K compounds are effective in counteracting the excessively prolonged prothrombin times encountered in bishydroxycoumarin therapy. This confirms the observations of several groups of workers cited above. The data also indicate that the response is in proportion to the amount of compound administered, even though the number of patients in the groups given different amounts of vitamin K is small. The amount of bishydroxycoumarin administered in the days prior to K day (the day on which vitamin K was administered) was comparable in the treated and in the control groups. The prothrombin times on K day are more prolonged in the treated group (range 55 to over 180 seconds) than in the control group (range 50 to 85 seconds). No evaluation of other factors has been made because of the small number of patients. The data presented compare the changes in prothrombin time in untreated patients with those treated with water-soluble vitamin K. We made no attempt to compare the effectiveness of water-soluble with oil-soluble compounds. Instead, we reviewed the data in order to report the experience in this hospital with the effectiveness of water-soluble vitamin K preparations in counteracting the excessively prolonged prothrombin times encountered in bishydroxycoumarin therapy. It is recognized that there is a difference in the action of the water-soluble and the oil-soluble preparations, which is not understood at the moment, but the oil-soluble preparations are of value in the treatment of some types of hypoprothrombinemia.[19] MacDonald, James and Miller demonstrated that the oil-soluble vitamin K_1 oxide is extremely active in counteracting the prolonged prothrombin times caused by bishydroxycoumarin. It is not always desirable in the course of bishydroxycoumarin therapy for active thromboembolic conditions to use such an active preparation that the prothrombin times are reduced to normal. However, certain instances of major hemorrhagic complications might warrant the use of the very active material.

TABLE 6.—*Summary of Results*

Group	No. of Cases	Total Bishydroxycoumarin, Mg., —4 to K or K-0 Days	Change in Prothrombin Time, Sec. 24 Hr.	48 Hr.
1*	16	440	—45	—43
2†	8	328	—76	—87
Combined 1 and 2	24	403	—55	—57
Control‡	18	379	—15	—24

* Treated with 72-75 mg. of vitamin K.
† Treated with 150 mg. of vitamin K.
‡ No vitamin K administered.

The report of James and his associates [14] was concerned with the comparison of the effectiveness of water-soluble with oil-soluble vitamin K preparations in correcting the hypoprothrombinemia due to bishydroxycoumarin to a prothrombin activity of above 30 per cent in the shortest possible length of time. Their studies seem to indicate that vitamin K_1 oxide is more active in counteracting the hypoprothrombinemia due to bishydroxycoumarin than are the water-soluble preparations. It is, however, difficult for us to explain why they observed no significant difference between the prothrombin responses in the conrol and the water-soluble vitamin K treated groups. A possible explanation may be the fact that their patients had received such large amounts of bishydroxycoumarin in the three or four days prior to the administration of the vitamin K preparation. From the data in their report we are unable to determine whether there was any difference in the type of curve obtained in these two groups. Some effect of the water-soluble preparations may have been obscured by their considering only the length of time required for the prothrombin activity to return to a value above 30 per cent. Since the object in the present report is to return the prothrombin time only to a safe range, the data are not strictly comparable. The large amounts of bishydroxycoumarin administered by James represent an experimental situation, which may significantly modify the response to water-soluble vitamin K; our clinical experience indicates that such amounts are rarely duplicated in the therapeutic use of bishydroxycoumarin.

Miller and others [15] concluded that under the conditions of their experiments the water-soluble vitamin K preparations were ineffective in counteracting the effect of bishydroxycoumarin, but that vitamin K_1 oxide and K_1 were effective. However, they administered bishydroxycoumarin simultaneously with the vitamin K preparations—an experimental procedure that should not occur in the clinical use of the drug. It is known that the simultaneous administration of bishydroxycoumarin with vitamin K decidedly alters the response to vitamin K. Therefore, their observations are not strictly applicable to the use of water-soluble vitamin K preparations in the course of bishydroxycoumarin therapy.

The over-all implications of these two reports indicating that the water-soluble vitamin K preparations are of little value in controlling the effects of bishydroxycoumarin therapy seem to be misleading, despite a brief qualifying statement that menadione bisulfite "in many cases unquestionably acclerates the return of the prothrombin time to normal after Dicumarol® has been stopped." [15] Our data indicate that these preparations do have a decided effect on hypoprothrombinemia encountered in bishydroxycoumarin therapy. With certain serious hemorrhagic complications in which a maximum vitamin K response is necessary, it seems preferable to use either larger doses of the water-soluble vitamin K preparations (table 3) or the oil-soluble vitamin K preparations.

19. Lewis, J. H., and Bennett, I. L., Jr.: Clinical Hypoprothrombinemia: A Study of Factors A and B of Prothrombin, abstracted, J. Clin. Investigation **26**: 1187, 1947. Ley, A. B.; Reader, G.; Sorenson, C. W., and Overman, R. S.: Idiopathic Hypoprothrombinemia Associated with Hemorrhagic Diathesis and the Effect of Vitamin K, to be published.

V 14
1951

SUMMARY

Data are presented that confirm the effectiveness of water-soluble vitamin K preparations in counteracting excessively prolonged prothrombin times occasionally encountered during the routine use of bishydroxycoumarin for the treatment of thromboembolic conditions.

CLINICAL NOTES

FULL TERM ABDOMINAL PREGNANCY WITH DELIVERY OF A LIVING CHILD

REPORT OF A CASE AND REVIEW OF THE LITERATURE

E. L. C. Broomes, M.D., East Chicago, Ind.

Although the delivery of a full term living baby after an abdominal pregnancy is still rare enough to justify its being regarded a medical curiosity, this case is presented only because of the patient's interesting history, signs and symptoms, which, considered in retrospect, should have been suggestive enough to indicate the true condition if the possibility of a progressive ectopic pregnancy had been kept in mind.

REPORT OF CASE

Mrs. R. S., of petite build and weighing about 90 pounds (40.8 Kg.), was first seen March 30, 1948. She had had a sudden attack of severe pains in the right abdominal quadrant and had fainted on attempting to stand up.

She admitted that her last menses had only lasted two days, instead of the usual four. After examination, a diagnosis of a ruptured ectopic pregnancy was made. The patient was immediately hospitalized. The diagnosis was confirmed at operation, and a ruptured right tube and a hemorrhaging right ovary were removed. The appendix was also removed at this time. The patient had an uneventful recovery.

She was next seen in July 1949, at her home. She was lying in bed, complaining of severe abdominal pains, which had begun suddenly while she was dancing. These pains radiated down her left leg and caused severe cramps. She complained of dizziness and admitted fainting while going to the lavatory. She denied the possibility of pregnancy, asserted that she had had no recent abnormal menses and added that she had been married only one week. (Several months later, she admitted that she did not menstruate either in July or in June, but did not tell because she was afraid of a second operation at that time.)

Physical examination at this time disclosed nothing significant, and, because of the conflicting menstrual history, it was decided to treat the patient conservatively. She was ordered to bed, and given meperidine (demerol®) hydrochloride, 100 mg.; an ice bag was placed over her abdomen, and 300,000 units of penicillin was administered. Her relatives were advised to notify the physician if her condition grew worse.

The following day the patient was reported as feeling improved. During the next three months she was examined and treated by several other physicians for dizziness, weakness, persistent pains in the left lower abdominal quadrant and cramps in the left thigh and legs. She was hospitalized on one occasion, Aug. 16, 1949, and treated for peritonitis and severe secondary anemia complicating a pregnancy, which was calculated to be in the fourth month. A roentgenogram, taken on August 26, was reported as showing a mass, probably fetal, lying to the right of the midline.

After the antepartum care of the patient was resumed, in October 1949, it was noted that the patient complained frequently of pains in the chest, easy fatigability and some difficulty in breathing freely, especially on climbing stairs. She also complained of violent fetal movements, which often prevented her from sleeping. However, she approached term without any mishap. About 20 hours before hospitalization, she began to complain of severe abdominal pains, which at the time of the first examination recurred every 15 minutes. Subsequent rectal examinations failed to show any dilatation of the cervix, in spite of the growing frequency of the pains.

The patient was hospitalized March 1, 1950, at 11 p. m. Eight hours later, in spite of strong abdominal contractions and pains that were recurring at short intervals, there was no evidence of progress. A roentgenogram of the abdomen, with internal pelvimetry, was requested. This revealed a generally contracted pelvis with a fairly large fetus which was apparently at term.

An obstetrical consultation was obtained, and immediate cesarean section was advised. The patient's blood was typed and cross matched, and suitable blood was made available in the operating room.

With the patient under spinal anesthesia, the previous right paramedian scar was excised and the abdomen was entered through this incision.

A dark bluish glistening sac, occupying the center of the cavity, was noted. Several large tortuous vessels could be seen on its surface. At the base, toward the pelvis, could be plainly seen the black hair of the fetus. This abnormal transparency was noted, but the true significance was still not suspected. The idea that this might not have been uterine pregnancy was not even considered at this time. Attempts to identify the bladder, so that the plica could be pushed back for the contemplated low cervical incision, were unsuccessful. In the attempt to find a cleavage plane, the thin sac was pierced; immediately there was a profuse bleeding. Attempts to control this with clamps produced more hemorrhage at other sites, since the clamps merely cut through the tissues, which were very friable. It was decided to deliver the baby by the quickest possible method. The rent at the base was enlarged, a hand was inserted and the head of the baby was brought out of the sac and the baby lifted out. The cord was clamped and cut. The infant cried vigorously at birth.

Even up to this time, it was not realized that the uterus was not involved. A posterior pituitary preparation (pituitrin®) was injected into the wall of the sac, and warm sponges were packed in the cavity for hemostasis. As the bleeding subsided, the sponges were removed and attempts were made to remove the placenta. No cleavage plane could be found. It was at this time, while the attachments of the placenta were being explored, that a small uterus comparable to that in a two month pregnancy was found in the pelvis. The true condition was now apparent. The placenta was seen to be attached to the ileum, the transverse colon, the descending colon, the left wall of the peritoneum, the broad ligament on the left and the ruptured tube.

Since the condition of the patient was good and the blood loss was being compensated by the transfusion, it was decided to remove the placenta. The entire placental mass was removed without perforation of the intestines. A few denudations of the serosa of the colon, where the placenta had been intimately attached, were repaired. The left tube, which was fragmentary, was removed. The abdomen was closed without drainage, and the patient was returned to the ward.

Instead of the anticipated stormy convalescence, the postoperative course was uneventful. The patient was discharged from the hospital on the fifth day. Sutures were removed on the ninth day, and she was well enough to attend a medical staff meeting on the twentieth postoperative day, when the case was presented to the staff.

The infant, who at birth had weighed 7 pounds 4 ounces (3,290 Gm.) and had cried vigorously, appeared normal in every respect during the first 20 hours of life and then suddenly began to show evidence of asphyxia. Oxygen was administered. A pediatric consultation was obtained, but in spite of all efforts, the child died after four hours. Autopsy failed to show any anatomic cause of death.

From St. Catherine's Hospital.

REVIEW OF THE LITERATURE

A review of the available literature shows that, according to Beck,[1] between 1809 and 1919 there were only 262 authenticated cases of extrauterine pregnancies in which the patients had survived the fifth month, with living fetuses.

Bland and Montgomery[2] collected reports on 321 cases of full term abdominal pregnancies with viable fetuses for the years 1813 to 1938. They reported a maternal mortality rate of 40 per cent and a fetal mortality rate of 50 per cent. The majority of the surviving children showed evidences of some abnormality, although several attained normal adulthood.

Hellman and Simon[2a] collected from all available sources records of 316 cases. In these cases, 158 fetuses were considered as viable and 101 mothers died. There were only 80 cases in which both mother and child survived, and, of this number, there were only 30 cases in which there was no demonstrable evidence of neurological or mental disturbances in mother or child.

In the years 1935 to 1949 I could find in the literature reports on only 21 cases of abdominal pregnancies in the world literature.[3] When one considers the fact that nearly 2,500,000 babies are born annually in the United States alone, the extreme rarity of the condition can be better appreciated.

In this series eight of the fetuses were already dead at the time of operation. In two cases the infants died within 24 hours of birth. Of the remaining infants, two showed evidences of neurological disturbances. There were five maternal deaths. There were only five cases in which both mother and child survived.

The management of the placenta varied. There were three cases in which total removal was attempted. In six instances, the placenta was marsupialized, the cavity packed and the abdomen drained. In the remaining cases no attempts were made to dislodge the placenta. The abdomen was closed, without draining.

In the first group, no deaths were reported. One patient required a second operation for a persistent draining sinus. The average duration of hospitalization was three weeks. There was one live child. In the second group, there were four instances in which patients had to be readmitted to the hospital for surgical treatments of complications. There were three maternal deaths. The average hospital stay was four weeks.

In the 12 cases in which the placenta was left intact and in situ, there were six with stormy postoperative courses. Reoperation was necessary in three cases. There were three maternal deaths. The average duration of hospitalization was four weeks.

It is obvious that because of the small number of reported cases in which the placenta was treated and since complicating factors and conditions varied even preoperatively in individual instances, the above figures must be considered as meaningless or at least as inconclusive when one tries to evaluate the various methods of treating the placenta.

COMMENT

In any discussion on abdominal pregnancy, almost invariably two points will be raised that can be depended on to provide food for discussion. These are (1) the probability that an abdominal pregnancy is a primary condition, and (2) the best method of management of the placenta. Whether abdominal pregnancy ever follows the primary implantation of an extragenitally fertilized ovum or whether the mechanism is based always on the rupture of a tubal pregnancy followed by a secondary implantation and nidation of the expelled embryo on a favorable nidus in some neighboring viscus is, of course, only of academic importance.

Nevertheless, the speculation raises an interesting question: Is the nidation of a fertilized ovum on nonmüllerian tissues possible? It should be kept in mind, that the syncytiotrophoblast of the early embryo, like most undifferentiated cells, is capable of amazing parasitism. Again, the peritoneum, derived from the primitive celom, has, in certain areas, a tendency toward endometrium-like differentiation. Because of this metaplastic, or, as some would prefer, prozooplastic, behavior, it might be conceded that there could be areas in the peritoneum having the cellular characteristics of the endometrium on which the active trophoblast of an extragenitally conceived embryo might effect favorable nidation.

In spite of the plausibility of this idea, it is doubtful that this question will ever be definitely settled so far as the human being is concerned.

As to the management of the placenta, there should be less room for disagreement. To attempt any manipulation when the operative risk is poor, except when it is absolutely necessary for the immediate conservation of life, or to effect any maneuver in which the attending hazard is greater than nonintervention is to be culpable of gross surgical indiscretion.

The present day tendency is to regard the placenta as an innocuous autogenous mass which is readily absorbable in the abdomen and, therefore, can be left in situ.

There are accumulating in the literature enough convincing reports to support this view. Nevertheless, it must be kept in mind that in the abdomen the placenta is a foreign body and has all the potentialities of such. A review of the cases observed and reported between 1935 and 1949, in which the placenta was left in the abdomen, showed that in at least 40 per cent abdominal

1. Beck, A. C.: Treatment of Extra-Uterine Pregnancy After Fifth Month, J. A. M. A. **73**: 962-965 (Sept. 27) 1919.

2. Cited by Lull, C. B.: Abdominal Pregnancy, Am. J. Obst. & Gynec. **40**: 194-202 (Aug.) 1940.

2a. Hellman, A. M., and Simon, H. J.: Full Term Intra-Abdominal Pregnancy, Am. J. Surg. **29**: 403-413 (Sept.) 1935.

3. (*a*) Beck.[1] (*b*) Lull.[2] (*c*) Bowesman, C., and Chenard, A. H.: Full Term Intra-Abdominal Ectopic Pregnancy: Surgical Treatment of 5 Cases, Irish J. M. Sc., March 1948, pp. 132-136. (*d*) Branscomb, L.: Advanced Abdominal Pregnancy, Am. J. Obst. & Gynec. **54**: 874-878 (Nov.) 1947. (*e*) Coodin, P.: Advanced Abdominal Pregnancy, Canad. M. A. J. **54**: 483-485 (May) 1946. (*f*) Eisaman, J. R., and Ziegler, C. E.: Abdominal Pregnancy: Report of Case with Full Term Living Infant and Recovery of Mother, J. A. M. A. **104**: 2175-2176 (June 15) 1935. (*g*) Gandy, R. A., and Colmers, R. A.: Abdominal Pregnancy: Case Report, Connecticut M. J. **13**: 630-632 (July) 1949. (*h*) Hu, S. T.: Full Term Intra-Abdominal Pregnancy with Living Mother and Child, Yale J. Biol. & Med. **19**: 951-953 (July) 1947. (*i*) McNeile, L. G.: Diagnosis and Treatment of Abdominal Pregnancy, with Report of 3 Illustrative Cases, West. J. Surg. **45**: 119-133 (March) 1937. (*j*) Nicodemus, R. E., and Carrigg, L. G.: Abdominal Pregnancy Requiring Secondary Removal of Placenta, Am. J. Obst. & Gynec. **39**: 153-154 (Jan.) 1940. (*k*) Rose, M. J.: Abdominal Pregnancy: Report of Case with Living Baby and Mother, J. Florida M. A. **31**: 475-476 (April) 1945.

V 14
1951

sinuses or peritonitis developed. There was one case of intestinal obstruction.

Nicodemus,[3] Lull,[2] Bland and Montgomery report instances in which a second operation had to be done to remove unabsorbed placental tissues. In one instance, 56 days after the first laparotomy, the placenta, far from being absorbed, had become vascularized and was hemorrhaging.

Perhaps the policy of choice should be to treat the individual patient as the particular circumstances would determine. Since the decision to drain or not is usually determined by the immediate conditions at operation, the question whether or not to remove the placenta should be decided only at the operating table. From a study of the postoperative complications reviewed in the literature, it is evident that the placenta is not always an innocuous mass. It is not always readily absorbed. Not infrequently, it has been directly responsible for disturbing sequelae. Based on these facts, a justifiable conclusion would be that the placenta should be removed whenever this can be done without compromising the safety of the patient.

NERVE BLOCK IN PAINLESS CHILDBIRTH

Orlen J. Johnson, M.D., Bay City, Mich.

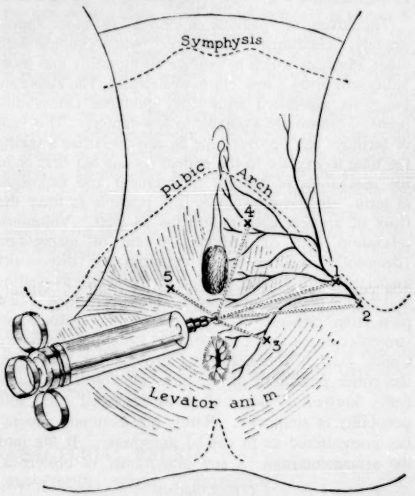
Pudendal nerve block in obstetrics is not new. King [1] described its use in 1916. DeLee made this statement in 1937: "Local anesthesia is very simple and can be used by any doctor with ordinary ability." [2] More recent authors have written of its use in cervical dystocia [3] and breech as well as normal deliveries.[4]

The early accounts of the procedure described two or four sites of injection. The technic here described is a modification which is simpler, gives better results and is suitable in the present concept of painless labor and deliveries.

TECHNIC

With the patient in lithotomy position, prepared and draped for delivery, a wheal is raised in the midline of the perineum about 1.5 cm. posterior to the vagina. All injections are carried out through this site with a 4 inch (10 cm.) 20 gage or spinal needle attached to a 30 cc. syringe filled with 2 per cent procaine (novocain®) hydrochloride. Two fingers are placed along the posterolateral wall of the vagina to the tip of the ischial spine. Frequently the pulsation of the pudendal artery can be felt as it emerges from Alcock's canal. The needle is passed horizontally lateral to the vaginal wall as guided by the fingers in the vagina. Procaine should be injected ahead of the needle. About 4 cm. from the start the needle will meet slight resistance and the patient will complain of discomfort unless the procaine is pushed ahead and the needle advanced slowly. This resistance is Colles' fascia, the lateral extension of the hymen, which is the seat of most of the pain in dilation of the perineum, particularly in primiparas. When the point of the needle is at the tip of the ischial spine, 5 cc. of procaine is injected after the usual precaution of aspiration to prevent arterial injection.

The needle is withdrawn about 3 cm. and advanced to the center of the ischial tuberosity where 2 cc. more is injected to block the inferior hemorrhoidal nerve. The needle is almost completely withdrawn and directed posteriorly and laterally into the center of the levator ani muscle, where 2 cc. is injected. Again the needle is almost withdrawn and advanced anteriorly toward the symphysis pubis 2 or 3 cm. lateral to the labial fold and 2 cm. from the skin at the depth of the hymen to a point almost level with the clitoris. Procaine is injected plentifully ahead of the needle and as it is withdrawn. This step is sufficient and necessary to block the perineal, ilioinguinal and genitocrural nerves to the anterior portion of the vagina. The omission of the latter step is responsible for poor anesthesia. The syringe is refilled as necessary, the needle being left in place.



Sites of injection in order. Site 5 is for episiotomy if mediolateral.

The same steps are carried out on the opposite side. As a last step one injection at the site of the anticipated episiotomy may be advisable for longer anesthesia. Forty to 60 cc. of 2 per cent procaine is used to produce the desired anesthesia for 50 to 60 minutes. Anesthesia can be maintained for two to four hours by the use of epinephrine in the solution.

Almost immediately on completion of the injections the vagina and perineum are as flaccid as with spinal anesthesia. Manual ironing of the perineum is painless. With skilled injection the patient complains of no dis-

1. King, R. W.: Perineal Anesthesia in Labor, Surg., Gynec. & Obst. **23**: 615-617 (Nov.) 1916.
2. DeLee, J. B., in discussion on Urnes, M. P., and Timerman, H. J.: Breech Delivery: Comparative Study of Local and General Anesthesia, J. A. M. A. **109**: 1616-1618 (Nov. 13) 1937.
3. Bunim, L. A.: The Effects of Local Anesthesia by Means of Pudendal Nerve Block with Novocain on Cervical Dystocia Occurring Late in the First Stage of Labor: Preliminary Report, Am. J. Obst. & Gynec. **45**: 805-811 (May) 1943.
4. Eisman, J., and McHenry, T.: Pudendal Nerve Block in Obstetrics (Perineal Field Block), Pennsylvania M. J. **49**: 964-967 (June) 1946.

comfort. Passing of the needle too close to the vaginal wall or too rapidly without sufficient procaine ahead seems to be the greatest cause of discomfort.

RESULTS

This type of nerve block has been used on 92 consecutive primiparas and 69 selected multiparas. The determining factors in multiparas are the thickness of the perineum and the discomfort of the patient. It was used on one sextipara and one octipara because of extreme pain in the final stage of previous deliveries.

No reactions from the procaine or complications have been encountered. There was no greater discomfort or delay in healing of episiotomies. The most satisfying results are obtained if the block is made just before full dilatation and as the patient begins to complain of discomfort from pressure of the head on the rectum or perineum.

COMMENT

The advent of "painless childbirth" or, more appropriately, "childbirth without fear" when coupled with other advances which have lowered mortality and morbidity can bring a new era in obstetrics. The elaborate programs associated with child guidance clinics and prenatal classes are available in few centers. This lack of facilities can be overcome by any physician's taking the time to explain to the patient having her first child the mechanics of uterine enlargement and expulsion at term. In some instances it is possible to allay the fears of apprehensive multiparas as well. Voluntary relaxation with or without the aid of meperidine (demerol®) reduces to a minimum the discomfort associated with normal dilation of the cervix as well as making the dilation more rapid. However, there is real pain from pressure of the head on the rectum and stretching or tearing of the perineal structures, primarily Colles' fascia. If relief is not provided at this stage, the entire procedure of "painless childbirth" is nullified. Satisfactory nerve block as described offers this possibility in simplicity. Rarely are anatomic anomalies encountered as in caudal anesthesia. It fits into the armamentarium of any practitioner of obstetrics.

CONCLUSIONS

In addition to anesthesia, the advantages of the nerve block described here are these: (1) greater cooperation of the patient and control of the advancing head; (2) fewer and less extensive lacerations because of relaxation of the perineum; (3) less extensive episiotomies; (4) no other anesthesia needed when outlet forceps are used; (5) facilitation of immediate repair; (6) a shortened third stage; (7) no relaxation of uterus and less frequent postpartum hemorrhage than with ether; (8) no fetal narcosis; (9) minimum of respiratory complications and no vomiting; (10) no anesthetist required, and (11) only one site of injection needed.

207 North Walnut Street.

1. Freyberg, R. H.; Patterson, M.; Adams, C. H.; Durivage, J., and Traeger, C. T.: Practical Considerations of the Use of Cortisone and ACTH for Rheumatoid Arthritis, read before the American Rheumatism Association, San Francisco, June 23, 1950.
2. Hench, P. S., in discussion on Freyberg and others.[1]
3. Freyberg, R. H.; Traeger, C. T.; Adams, C. H.; Kuscu, T.; Wainerdi, H., and Bonomo, L.: Effectiveness of Cortisone Administered Orally, Science **112**: 429, 1950.

THE ORAL USE OF CORTISONE SUSPENSION IN SYRUP

Ephraim P. Engleman, M.D.
Marcus A. Krupp, M.D.
and
Peter Kunkel, M.D., San Francisco

In June 1950, Freyberg [1] and Hench [2] independently announced the efficacy of cortisone tablets. Later, Freyberg and associates [3] published the results of treatment with cortisone tablets in four patients. It was apparent that a suspension of cortisone taken orally should be absorbed from the gastrointestinal tract as readily as cortisone taken in tablet form. Moreover, tablets of cortisone were not generally available at the time. Accordingly, we used cortisone suspension by mouth in order to evaluate the efficacy of the oral route of administration. This preliminary report is based on our experience with 29 patients selected from the medical wards of the Veterans Administration Hospital, San Francisco, and from private practice. Each patient had a disease known to respond favorably to cortisone and severe enough to warrant the use of the hormone.

METHOD OF ORAL ADMINISTRATION OF CORTISONE SUSPENSION

The injectable suspension of cortisone has a highly disagreeable taste, which can be adequately disguised with one of the standard vehicles, such as syrup of cherry or orange. The desired quantity of cortisone suspension is added to a measured volume of vehicle, the proportions so adjusted that each cubic centimeter of the mixture contains 1 or 2 mg. of cortisone. We have been able to dispense a week's supply of the drug without noting any variation in potency from one dose to the next. The uniformity of clinical response further indicates that the cortisone suspension in syrup retains its effectiveness for at least a week. However, since cortisone has a tendency to settle out of suspension, it is necessary to shake the bottle vigorously before each use.

COMPARISON OF CORTISONE SUSPENSION ADMINISTERED BY THE ORAL AND INTRAMUSCULAR ROUTES

Twelve patients with chronic disease were treated first with intramuscular injections of cortisone and then with cortisone suspension taken orally, to permit comparison of the two methods of administration. In this group were included eight patients with rheumatoid arthritis and one each with chronic gouty arthritis, chronic urticaria, psoriasis and uveitis due to Boeck's sarcoid.

The oral maintenance dose of cortisone could not be determined until 10 to 14 days had elapsed since the last intramuscular dose, because that much time was

Reviewed in the Veterans Administration and published with the approval of the Chief Medical Director. The statements and conclusions published by the authors are the result of their own study and do not necessarily reflect the opinion or policy of the Veterans Administration.

Attending Physician, Internal Medicine, Veterans Administration Hospital; Assistant Clinical Professor of Medicine, Division of Medicine, University of California Medical School (Dr. Engleman). Attending Physician, Internal Medicine, Veterans Administration Hospital; Assistant Clinical Professor of Medicine, Stanford University School of Medicine (Dr. Krupp). Resident, Internal Medicine, Veterans Administration Hospitla (Dr. Kunkel).

V 14
1951

required for complete absorption of cortisone from intramuscular depots.

For four patients with rheumatoid arthritis the minimal dose required to produce complete relief of symptoms was determined for both the intramuscular and the oral route of administration. Corresponding weekly doses were found to be nearly identical for two patients, while the minimal effective oral dose was 20 per cent and 30 per cent greater than the intramuscular dose for the other two. Even when minimal effective doses were not determined, the oral doses were similar to those generally given parenterally.

PATIENTS TREATED ENTIRELY WITH CORTISONE ORALLY

Nine patients with chronic disease and eight with acute disease were treated only with cortisone administered orally. The first of these groups included six patients with rheumatoid arthritis and one each with rheumatoid arthritis and psoriasis, chronic bronchial asthma and Addison's disease. The group with acute diseases consisted of four patients with acute gouty arthritis, two with status asthmaticus, one with dermatitis venenata and one with rheumatic fever. In three of these patients the initial oral dose of cortisone was not large enough to produce a therapeutic effect. Ten of the remaining 14 patients showed symptomatic and objective improvement within four to 12 hours after therapy was begun. Only one of the 14 patients failed to respond within 36 hours. The prompt therapeutic effect of cortisone administered orally indicates that this hormone is absorbed more rapidly from the gastrointestinal tract than from intramuscular depots. When oral cortisone therapy was stopped or the dose was reduced to suboptimal levels, relapse usually occurred within 24 hours, demonstrating the brief duration of action of an oral dose of cortisone.

MANAGEMENT OF DOSAGE WITH ORAL ADMINISTRATION OF CORTISONE

Our experience with cortisone suspension in syrup, as well as with cortisone tablets,[4] leads to the establishment of a few simple rules for the oral administration of cortisone.

1. Because an oral dose of cortisone in syrup is rapidly absorbed, it is usually unnecessary to use large "priming" doses when therapy is initiated.

2. Because the effect of an oral dose of cortisone is dissipated more rapidly than that of an equivalent intramuscular dose, cortisone must be taken orally three or four times during the waking hours. It has not been found necessary for the patient to take a dose during the night.

3. The minimal effective dose varies widely for different patients and must be determined by trial. The majority of our patients have been adequately maintained on 75 to 100 mg. of cortisone daily, but some have required as much as 200 mg. a day.

4. When the administration of cortisone is changed from the intramuscular to the oral route, it should be kept in mind that some cortisone will continue to be absorbed from sites of injection, the duration of absorption depending partly on the size of the previous intramuscular dose.

5. When administration of cortisone is changed from the oral to the parenteral route, oral administration should be continued, whenever possible, for two to four days after the first intramuscular dose. This will prevent a relapse during the period of transition.

COMMENT AND SUMMARY

In this preliminary trial the oral administration of injectable cortisone has proved so satisfactory that it has almost completely supplanted the intramuscular route in our practice. The minimal effective oral dose of cortisone may be slightly larger than the intramuscular dose, but the disadvantages of a larger maintenance dose may be offset by the significant advantages of oral administration.

It has been shown that the effect of cortisone when taken orally is prompt and of short duration, whereas the action of a dose given intramuscularly is slower to appear and may last for a number of days. The fact that oral administration of cortisone usually produces a therapeutic effect within a few hours is of obvious advantage in the treatment of acute disease. The brief action of an oral dose permits prompt termination of the effect of cortisone should dangerous reactions occur.

There is no reason to believe that the hazards of cortisone therapy are reduced by use of the oral route of administration. Although so far hypertension and Cushing's facies have been the only untoward effects encountered by us in the oral use of cortisone, salt and water retention, pulmonary edema, hypertension, hyperglycemia and hypokaliemia were looked for at regular intervals. Our experience with cortisone tablets indicates that there is no difference in therapeutic effect between these and cortisone in syrup.

The oral route is the method of choice for therapy with cortisone, unless contraindications to oral medication exist.

ABACTERIAL PYURIA

TREATMENT WITH AUREOMYCIN

William Baurys, M.D., Sayre, Pa.

Abacterial pyuria, an acute and sharply severe irritation of the urinary tract, is also referred to as acute interstitial cystitis and amicrobic pyuria. The terms are appropriately descriptive. Patients with this disease manifest all the symptoms of painful acute cystitis. Although a high degree of pyuria is present, the presence of organisms has never been demonstrated. Almost invariably the patients are extremely ill and require hospitalization. The onset is abrupt, with no apparent antecedent provoking factors. In addition, there is gross hematuria with a degree of frequency and burning that at times precipitates incontinence. The disease occurs most frequently among young men. Ordinarily urographic studies reveal no involvement of the upper part of the urinary tract. Cystoscopy discloses a violent reaction in the bladder mucosa.

4. Cortisone tablets were made available by Dr. J. M. Carlisle, Medical Director of Merck & Company, Inc.

From the Guthrie Clinic.

Edema and congestion which simulate tumor or hemangioma are observed.

Arsenicals given intravenously and penicillin have been the most popular remedies. With such therapy, the disease usually subsides in three to six weeks.

Since no organisms have ever been isolated, it is logical to assume that the condition is a virus infection. Because aureomycin has been so effective against other virus diseases, this antibiotic was tried in two cases of abacterial pyuria, with spectacular results. Both patients became almost symptom free overnight, even though pyuria persisted for several days. However, within five days, the urine in each was microscopically clear. After several weeks of observation, there was no evidence of recurrence. The response to this treatment has been dramatic; aureomycin surpasses any other type of therapy that we have employed in this variety of urinary tract inflammation.

REPORT OF CASES

CASE 1.—A 21 year old white laborer complained of gross hematuria, severe burning during and after urination and a frequency of every 30 to 45 minutes, with episodes of incontinence. The onset occurred three days before his admission to the hospital, and during this interval the patient had been unable to sleep because of urgency and burning. He had never experienced such an attack previously. He stated that he had never had venereal disease, and except for the ordinary childhood exanthems, there was no history of any other illnesses.

Examination revealed a rather ill patient with a rapid pulse and a temperature of 100 F. With the exception of tenderness over the bladder area, the rest of the examination revealed nothing significant. A chest roentgenogram disclosed no abnormalities. The blood pressure was 138 systolic and 88 diastolic. The kidneys were neither tender nor palpable.

Digital examination of the prostate showed a normal gland, and the fluid contained more than the average number of pus cells. A cystoscope was introduced without difficulty. The bladder was extremely intolerant to distention. The mucosa was beefy red and edematous and bled easily. Catheterization of the ureters was impossible because of the small bladder capacity. However, intravenous urography showed a normal upper part of the urinary tract, with a very small bladder shadow. Repeated culture of urine was reported as showing no growth. The Kahn reaction was negative; the red blood cell count was within normal limits, and the white blood cell count was 17,900, with 72 per cent polymorphonuclear leukocytes, 18 per cent small lymphocytes, 8 per cent large mononuclear leukocytes and 2 per cent eosinophils.

Treatment consisted in administration of 250 mg. of aureomycin hydrochloride every three hours for the first day and every six hours for the following days. The first dose was administered at 11 a. m., and the next day the patient was almost symptom free. There was no longer any burning or hematuria, and the frequency was remarkably lowered. That night the patient voided twice, as compared with a previous frequency of every 30 to 45 minutes. Microscopic examination of the urine revealed much pus, even though the subjective symptoms had subsided. Within 48 hours, the distress had disappeared entirely and urination occurred at normal intervals. The patient was discharged from the hospital at the end of four days, at which time the pyuria had disappeared.

CASE 2.—A 21 year old student reported with severe hematuria and frequency for the preceding two days. There was asscciated nocturia every hour and severe burning during and immediately after urination. He was unable to associate the onset with any provoking cause or agent. He stated that he had not had venereal disease. There was no initial chill. Until this illness the patient had always enjoyed good health. He appeared to be fairly healthy. Nothing significant was uncovered in the examination of the chest and abdomen other than a moderate amount of tenderness over the bladder area. The kidneys were neither palpable nor tender. The oral temperature was 96.6 F.

Digital examination of the prostate gland showed nothing remarkable. At cystoscopy, the external genitals appeared normal. Examination was extremely painful because of the small bladder capacity. The mucosa was beefy red and edematous. No attempt was made to catheterize the ureters. The urine was cloudy and grossly bloody, and the microscopic examination revealed innumerable pus and blood cells. Culture yielded no growth.

Because hospital beds were unavailable, aureomycin was prescribed and the patient was treated as an outpatient. The medication was started in the morning, and the following day he was symptom free, even though the urine showed a copious amount of pus. Within four days, the pyuria had disappeared and he felt entirely well. Periodic follow-up examinations at weekly intervals had shown no recurrence at the end of five weeks.

SUMMARY

Two cases of abacterial pyuria treated with aureomycin are reviewed. The response to therapy was dramatic. Aureomycin appears to be far superior to other therapeutic agents for this urinary tract disease.

COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

The Council on Physical Medicine and Rehabilitation has authorized publication of the following report.

HOWARD A. CARTER, *Secretary.*

MAICO TRAIN-EAR, MODEL 38, ACCEPTED

Manufacturer: The Maico Company, Inc., 21 North Third Street, Minneapolis 1.

The Maico Train-Ear, Model 38, is a portable device intended to enable teachers and parents to bring phonographic recordings, radio programs and the spoken word (by microphone) to patients with impaired hearing. The entire apparatus is housed within a carrying case with handle. Unpacked, it measures 21.6 by 36.8 by 56 cm. (8½ by 14½ by 22 inches) and weighs 13.6 Kg. (30 pounds). Packed for domestic shipment, it makes a package measuring 43 by 26.4 by 61 cm. (17 by 10¼ by 24 inches) and weighing 16.8 Kg. (37 pounds). The foreign shipping weight is 34 Kg. (76 pounds). These weights include the headset and microphone but do not include the following accessories: Extra headset, extra microphone assembly, telephone pickup coil, multiple microphone adapter, Y-connector for two microphones, signal cord and multiple headset adapter. The device requires a source of alternating current at 110 to 120 volts, and draws 75 watts or 0.8 ampere.

Maico Train-Ear, Model 38

Evidence from sources acceptable to the Council indicated that this device was satisfactory for its purpose; it is not designed for use as a speech audiometer. The Council on Physical Medicine and Rehabilitation voted to include the Maico Train-Ear, Model 38, in its list of accepted devices.

V 14
1951

COUNCIL ON PHARMACY AND CHEMISTRY

The Council has unanimously adopted for publication the following statement on the death of Walter Walker Palmer.

R. T. STORMONT, M.D., *Secretary.*

The Council on Pharmacy and Chemistry of the American Medical Association records with deep sorrow the death of Walter Walker Palmer, Bard Professor of Medicine Emeritus of the College of Physicians and Surgeons of Columbia University and consultant to the Presbyterian Hospital, who died suddenly on his farm at Tyringham, Mass., on Oct. 28, 1950. It was a still, mild and brilliant autumn afternoon, and the end came as he would have had it. Yet, to his family and friends, it came all too soon, for he was in vigorous health and full of enthusiasm for his work as director of the Public Health Institute of the City of New York, Inc. More important, he was happy in his personal life. He was enjoying to the full the deep satisfaction which comes from contemplation of a highly productive career dedicated primarily to the service of one's fellow man.

Dr. Palmer was born in Southfield, Mass., on Feb. 27, 1882. He attended Mount Hermon Academy and was graduated from Amherst College in 1905. During his college days he was a football player of note, but more outstanding in his recollections were the pleasures he derived fro mthe Amherst paleontological expedition to Wyoming in 1904. After graduation, he taught mathematics at Milton Academy and then attended Harvard Medical School, from which he graduated in 1910. In 1912, after completing his internship at the Massachusetts General Hospital and having arranged to enter medical practice, he became interested in the problem of acid-base balance and edema formation in nephritis. A visit to Prof. L. J. Henderson at the Harvard Medical School proved to be the turning point in his life. He changed his plans and accepted the Henry P. Walcott fellowship at the Massachusetts General Hospital. He served as resident physician at the Massachusetts General Hospital from 1913 to 1915 and was at the same time instructor in physiological chemistry at Harvard. In 1915, Dr. Palmer moved to the Rockefeller Institute in New York, where he was an assistant in medicine and assistant resident physician. In 1917 he was called to Columbia to be associate professor of medicine and acting director of the Medical Service of the Presbyterian Hospital.

During the years of World War I, Dr. Palmer held a commission as first lieutenant in the Medical Reserve Corps of the U. S. Army. In 1919 he accepted the full time position of associate professor of medicine at Johns Hopkins University and was made an associate visiting physician to the Johns Hopkins Hospital. He remained there until 1921, when he was invited to head the department of medicine in four of the leading universities in this country. Deeply imbued with the conviction that a full time nucleus was essential in the development of the teaching of medicine and enthusiastic over the contemplated establishment of the first medical center, Dr. Palmer decided to return to New York as the Bard Professor of Medicine at Columbia and the director of the Medical Service of the Presbyterian Hospital. "Only two requests were made of the hospital: lunch facilities for the staff and increased laboratory space." The rest he accepted on faith, a faith amply justified by the course of events. During the next 26 years, until his retirement in 1947, Dr. Palmer developed his department, as he stated, with "a goodly company of full time men, combined with sympathetic and understanding men in practice," thus providing a "large and varied group" with "wide flexibility in organization." The vision exhibited by Dr. Palmer, his rare capacity to judge the qualities and capacities of men, the complete freedom he allowed his associates and his loyal support in times of need contributed, far more than formal organization, to the spirit and strength of his department and brought to it a position of preeminence.

Dr. Palmer had a rich and profitable career in research. His early collaboration with Prof. L. J. Henderson culminated in the now classical studies on acid-base equilibrium, which he continued at the Rockefeller Institute and at Johns Hopkins. He made significant contributions to our knowledge of diabetes, particularly as related to the mechanism of ketosis. Later, he attacked problems of iodine metabolism of the thyroid gland and added materially to the understanding of thyroid physiology as well as to the management of thyroid disease. Dr. Palmer was the author of numerous clinical articles and was at one time a member of the editorial board of *Medicine* and of the *Archives of Internal Medicine*. At the time of his death he was editor in chief of the "Nelson Loose-Leaf Medicine" and chairman of the advisory committee of the *American Journal of Medicine*.

As a teacher of medicine and as a physician, Dr. Palmer inspired in his staff and his students a high regard for the basic qualities on which is built sound medical practice. He had little use for exhibitionistic discourses on the exotic. He preferred to emphasize the understanding of disease mechanisms and the application of common sense.

Many honors were bestowed on Dr. Palmer during his career: He received the honorary degree of Doctor of Science from Amherst College in 1922, from Columbia in 1929 and from Princeton in 1947. He was at one time president of the Harvey Society, and in 1949 he was president of the American College of Physicians. He was a member of many professional societies, including the American Medical Association, the Association of American Physicians, the American Society for Clinical Investigation, the Cosmopolitan Medical Club, the Society for Experimental Biology and Medicine and the New York Academy of Medicine. Dr. Palmer also served as a member of the National Board of Medical Examiners from 1921 to 1943. During World War II he served as chairman of the Committee on Drugs and Medical Supplies of the National Research Council and as a member of its Committee on Medicine. He was an advisor to the War Production Board and a member of the Advisory Committee of the Office of Scientific Research and Development. In 1945 and 1946 Dr. Palmer was chairman of the Medical Advisory Committee appointed by Vannevar Bush to prepare a report for the President on the establishment of a National Science Foundation.

Among Dr. Palmer's deepest interests was the Council on Pharmacy and Chemistry of the American Medical Association, to which he was first appointed in 1919. In 1936 he was made vice chairman and served in that capacity until his retirement in 1947. Dr. Palmer gave unstintingly of his time, energy and thought to the work of the Council, which he always felt was fulfilling a great responsibility of American medicine.

Dr. Palmer's interest extended far beyond the field of medicine. He loved his farm and farming in Massachusetts. He became a skilled cabinet maker and had as much affection for the qualities of wood as for workmanship. He was an ardent fisherman. He had a deep appreciation of music and keenly enjoyed the informal musicales in which his family and friends participated in his home. He was greatly attached to the Century Association, of which he was a vice president, and glowed in the congenial companionship of its members.

Dr. Palmer will be remembered above all as a sterling friend, richly endowed with those sturdy qualities of character on which this nation was founded. He was a big man in both physique and spirit. He was a tower of strength, and those in need constantly sought his wise counsel, for with all his solidity he had a disarming warmth and a gentle humor. He had deep human understanding and inspired complete confidence. He was utterly unselfish and generous to the last degree. He had a rugged integrity and quiet but abiding contempt for sham, superficiality and insincerity.

With the death of Dr. Palmer, American medicine has lost a great leader. His contributions to medical science, medical teaching and the care of the sick, as well as the affection and gratitude which he engendered in those who happily came under his influence, will endure.

THE JOURNAL
OF THE AMERICAN MEDICAL ASSOCIATION
535 N. DEARBORN ST. . . . . CHICAGO 10, ILL.
Edited by . . . . . AUSTIN SMITH, M.D.
Associate Editor . . . . . JOHNSON F. HAMMOND, M.D.
Editor for Medical Literature Abstracts . GEORGE HALPERIN, M.D.

Subscription price . . Fifteen dollars per annum in advance
Cable Address . . . . . "Medic, Chicago"

INSENSITIVITY TO PAIN

Pain is a centrally integrated experience, the painful sensations being derived from impulses traversing specific pathways. According to Wolff and Hardy [1] all fibers carrying impulses experienced as pain enter the spinal cord through the dorsal root ganglions. After entering the cord these impulses are conveyed across to the opposite side, where the pathways are localized in the anterolateral portion of the spinal cord. The fibers of the spinothalamic tract pass into the nucleus centralis posterior of the thalamus. The cortical projection from the nucleus centralis posterior is predominantly to the postcentral convolution. It is probable, according to Wolff and Hardy, that the brain structures involved in pain perception occur in both peripheral hemispheres in the region of the central fissure.

The function of the sense of pain is protective; it serves to warn of damage and urges the organism to defensive measures. There is a distinction between perception of pain and reaction to pain. Perception of pain may be evaluated in terms of quality, intensity and temporal aspects, whereas reaction to pain is manifested by such symptoms as tachycardia, panting, bowel disturbances, anxiety, fear, terror, panic and prostration.

The dual aspect of pain, that is, the distinction between perception and reaction to pain, is apparent and is easily appreciated in the case of heat, light, touch, cold and olfactory perception. The reaction pattern of the organism to noxious stimuli has many components. Reaction to pain is modified by conditioning experiences, such as the excitement of a game or combat, the apathy that accompanies tissue damage during certain religious and mystic practices, the indifference to tissue damage during sexual excitement and the indifference to pain during parturition in women who are confident in their physician and desirous of bearing a child.

Total absence of the usual physiological behavioral responses to noxious stimuli is rare. Ford and Wilkins [2] described three children with lack of reaction to pain rather than absence of pain as sensation. They could appreciate light touch and could distinguish between warm and cool test tubes and between the head and point of a pin. They were, however, indifferent to damaging stimuli. Kunkle and Chapman [3] described a young man who had almost complete insensitivity to pain and attacks of unconsciousness beginning in childhood. The measurement of pain threshold in their patient confirmed the presence of a greatly elevated threshold for both superficial pain and deep somatic and visceral pain. Immersion of the hand into ice-cold water failed to produce any pain. However, definite, almost excessive pressor effect on the arterial blood pressure was noted. Boyd and Nie [4] describe an otherwise apparently normal girl, 7 years old, who was completely insensitive to pain. The usual painful responses could not be obtained by any stimulation. She was able to distinguish sharpness from dulness, and the senses of touch, vibration, position and gnosis were normal. She had incurred innumerable cuts, bruises and infections but had never mentioned experiencing pain. Careful study of the patient excluded any gross neuroanatomic lesion. Mental deficiency was excluded by psychometric test results and her active, alert responsiveness.

Boyd and Nie suggest two theories to explain the patient's indifference to pain: 1. There exists a congenital structural defect with incomplete neural connections and communicating fibers in the postcentral area with consequent inability to organize the complex concept of pain. 2. There is no neurological defect, but there is indifference to pain, which represents an aphasic-like disturbance. It is also possible that there is present a combination of these two mechanisms.

McMurray [5] reports, in a recent issue of the *A. M. A. Archives of Neurology and Psychiatry*, an exhaustive study of a patient with universal insensitivity to pain. A fairly complete study could be made, because of the age of the patient, her intelligence and her willingness to cooperate. She presented no evidence of neurological or psychological deterioration, and there was available a large amount of reliable background data from hospital records dating back to the time when the patient was 21 months old. Encephalographic studies revealed no pathological wave forms.

The patient was subjected to a series of experimental studies with various pain-producing stimuli used and to another group of experiments in which a variety of stimulating conditions of a non-noxious nature was used. The physiological responses to these varied stimuli were measured by continuous readings of the blood pressure, heart rate and respiration. At the same time, all relevant behavioral reactions were observed. At no time, during any of the experiments in which noxious stimuli were used, did the patient report a sensation or feeling that could be interpreted as a report of pain. Consistent with this was the complete absence of any observable signs of painful experience.

1. Wolff, H. G., and Hardy, J. D.: On the Nature of Pain, Physiol. Rev. **27**: 167 (April) 1947.
2. Ford, F. R., and Wilkins, L.: Congenital Universal Insensitiveness to Pain, Bull. Johns Hopkins Hosp. **62**: 448, 1938.
3. Kunkle, E. C., and Chapman, W. P.: Insensitivity to Pain in Man, A. Research Nerv. & Ment. Dis., Proc. (1942) **23**: 100, 1943.
4. Boyd, D. A., Jr., and Nie, L. W.: Congenital Universal Indifference to Pain, Arch. Neurol. & Psychiat. **61**: 402 (April) 1949.
5. McMurray, G. A.: Experimental Study of a Case of Insensitivity to Pain, A. M. A. Arch. Neurol. & Psychiat. **64**: 650 (Nov.) 1950.

V 14
1951

The psychological examination and interviews, conducted over a period of three months, failed to disclose any evidence of a disorder that could plausibly result in this picture. A histological study of the peripheral cutaneous innervation did not reveal anything abnormal.

The mechanisms involved and the possible localization of a defect or anomaly in the brain in this puzzling syndrome have not been discovered. Their eventual elucidation will in all probability add new information on the subject of pain.

CONTROL CHARTS IN THE CLINICAL LABORATORY

With the advance of medical diagnosis and therapy the importance of the chemical laboratory has increased; the number and diversity of the analyses carried out per day by the laboratory has also become much greater. To obtain uniformly reliable data from a busy chemical laboratory requires constant supervision by either the director of the laboratory or an equally qualified person. Normally such personnel does not have sufficient time to devote to detailed supervision of the many methods employed. As one solution to this problem a large clinical laboratory has recently borrowed from industry a procedure known as quality control. This procedure, widely used to detect, with a minimum of inspection, any undue variations in a manufacturing process, has been successfully adapted to the clinical laboratory. Here it provides a simple and continuous check on the accuracy of the various chemical technics employed. The method consists of the setting up of "control charts," on which are indicated the acceptable limits of variation for each technic determined statistically. Each technic is checked at regular intervals by the performance of routine analyses of standard samples of known composition. When these results are plotted on the control chart, any significant trend or deviation from the accepted limits becomes evident immediately and can be regarded as evidence that the method or the analyst is at fault.

The advantage of the control chart in the clinical laboratory is that it offers a method of determining at a glance the resultant effect of all factors that influence the reliability of the method studied, e. g., the reagents, standards, preparation of the protein-free filtrate if one is used, time factors and the effect of the glassware and instruments used in the analysis. In addition, it offers a rational basis for action in the correction of a method that is not functioning properly. Thus the person who prepares the chart can tell instantly whether a method is not operating satisfactorily, that is, out of control, without having the determination yield values that are obviously wrong (for instance, value for nonprotein nitrogen in the blood being either 2 or 2,000 mg. per 100 ml.). Aided by the control chart, one can determine when a method is in error, but the chart cannot, except in a few specific instances, indicate the precise cause of error or how to correct it. This is a problem for the analyst. However, should a reagent be unstable and slowly deteriorate, one would notice a definite trend in the control chart indicative of this change.

The paper of Levey and Jennings [1] gives the details for setting up control charts used in the estimation of urea content of blood, and the chloride, carbon dioxide-combining power and total protein, as well as albumin content of plasma. The actual mechanics for setting up control sharts is simple, requiring no special equipment, so that most laboratories can apply these statistical principles. The data presented in the orginal work were secured by seven different technicians and three student technicians; yet there was no constant difference that could be attributed to any one worker. This would tend to indicate that the ordinary methods used in the chemical laboratory can be well handled by various workers and do not require a specific technician for a definite test in order that consistent data be obtained. However, it would be possible to detect an inept analyst by use of the control charts.

Application of the quality control concept with the use of control charts to the chemical laboratory of medical institutions appears to be an important step in the direction of obtaining more uniform values for the clinician. This is especially important when estimations are being made of substances that occur in minute amounts and where the limits, which are of clinical importance, are narrow. The protein-bound iodine content of serum is a good example of such a substance. Again, the control chart should have a prominent place in the determination of the sodium and potassium content of serum where complex methods of instrumentation may offer factors capable of influencing the ultimate value. This is another example of the application of a discipline which at first seems foreign to medical practice but which on wider acceptance will show its value. The constant assimilation of technics of other branches of knowledge tends to expand the armamentarium of medical practice and research.

AMERICAN MEDICAL EDUCATION FOUNDATION RECEIVES ENTHUSIASTIC RESPONSE

Although the establishment of the American Medical Education Foundation was announced only three weeks ago, in the January 20 issue of THE JOURNAL, the prompt and generous support it has already commanded from physicians makes it clear that the medical profession's effort to raise a substantial fund for the unrestricted use of the nation's hard pressed medical schools will be a successful one. Outstanding among the responses to date is the receipt of a check for $100,000 from the California Medical Association to be added to the $500,000 that the American Medical Association appropriated as the nucleus for the fund. Contributions from individual physicians, which began to be received the day after the Foundation was announced, are increasing daily in number and total amount.

When the Foundation was announced, it was pointed out that more than token contributions would be needed to provide the type of assistance required, and it was

1. Levey, S., and Jennings, E. R.: Use of Control Charts in the Clinical Laboratory, Am. J. Clin. Path. 20: 1059 (Nov.) 1950.

therefore suggested that each physician consider an annual contribution of $100 to the Foundation. It is very encouraging that the great majority of contributions received have been for amounts of $100 or more. It is clear from the letters that have accompanied the contributions that the Foundation has fired the imagination of the profession and has provided the individual physician with a welcome instrument for making his personal contribution to the solution of one of medicine's most important problems.

The aim of the Foundation is to raise within the next few months a fund sufficiently large to provide substantial grants to the medical schools this year. Elsewhere in this issue (advertising page 20) will be found a contribution blank which can be used conveniently by those wishing to support the Foundation. It is urged that the prompt and generous flow of contributions already under way be sustained and increased. Contributions should be made to the American Medical Education Foundation and sent to the Foundation at 535 North Dearborn Street, Chicago 10.

MEDICAL MEETINGS DURING ELECTIONS

The House of Delegates of the American Medical Association at its December 1950 meeting in Cleveland gave consideration to the holding of medical meetings during elections. A resolution introduced from Pennsylvania warned of the error of scheduling state, national and regional medical meetings at such times. The Reference Committee on Miscellaneous Business, to which the resolution was referred, submitted the following report, which was adopted:

> Your Reference Committee on Miscellaneous Business heartily agrees with the intent of the resolution and feels that it is inconsistent and unthoughtful for medical organizations to urge doctors to get out and vote and then arrange meetings which interfere with this privilege. Your committee requests that editorial comment be made on this problem in The Journal of the American Medical Association in order that the purpose of this resolution may be implemented. It therefore recommends the adoption of this resolution.

While physicians have always been interested in elections, there today is added reason for this interest because they must, whenever possible, use the privileges which they have as citizens to voice support for what they believe is right. They have health and civic responsibilities, which the general population long has recognized and which the medical profession is carefully studying, to see how it can best serve the community and the nation. It is not possible for physicians to limit their participation in local affairs to local health problems. They must consider their roles in a wide range of activities, including even the defense of their country. In 1950 physicians had an excellent opportunity to prove that they were truly interested in all phases of civic affairs. All local, state and national medical organizations are urged to exercise extreme care in the selection of dates for their meetings so that these dates will not conflict with those for elections.

A NEW APPROACH TO POSTGRADUATE EDUCATION

An experiment in postgraduate education being conducted by the Indiana State Medical Association will be watched with great interest by the profession. Beginning in January 1951, scientific programs are to be transmitted once a month by private telephone wire to the 92 county societies throughout the state. This is similar to the plan that has been used successfully for the past four years by the School of Dentistry of the University of Illinois.

For the present all programs will originate at the University of Indiana Medical School, where the speakers of the evening gather before microphones. The state society and the school arrange for a network of private wires, with bridging amplifiers that go out to each town where a county society meets. The county society in turn arranges for a private line to its meeting place and for the loan of a public address system. Listeners are furnished with brochures containing short biographies of the speakers, an outline of each address, reproductions of suitable visual aids and space for notes.

The cost of the lines to each county, figured at 10 cents an air mile, will be $162 a month and the cost of the bridging connection $900 a month. Additional programs in any one month can be had for the line cost only, i. e., $162. These charges are paid by the state society and the medical school, while local expenses are paid by the county society.

If these programs are well received, they may be expanded to include the use of speakers widely separated over the country, coordination of the efforts of several states or even the use of a nationwide hook-up. Ultimately, it may be possible to include the use of television programs transmitted by wire. The addition of the visual factor would significantly enhance the content and effectiveness of the programs and perhaps provide an answer to one of our difficult educational problems.

Since the end of World War II there has been increasing interest in providing up-to-date scientific information for the general practitioner. Many methods have been tried in an effort to attain maximum effectiveness with a minimum loss of time from practice for all concerned. Among the approaches that have been used are clinical sessions conducted at medical centers, lectures alone or lectures and clinical sessions conducted at local centers by visiting experts either singly or in teams. No system so far has been wholly satisfactory, and probably this one will also have shortcomings. One major disadvantage, namely, the impossibility of active audience participation, may be overcome partly by the use of two way communication. This disadvantage, however, seems to be outweighed by the opportunity that is offered for providing a wider audience for outstanding medical scientists and the additional possibility that the medical centers can make available to the man in general practice their abundant clinical resources. Potentialities of the Indiana plan are such that it may well initiate a major development in postgraduate medical education.

V 14
1951

ORGANIZATION SECTION

CUBA AWARDS THE CARLOS FINLAY ORDER OF MERIT

At the recent Pan American Conference on Cortisone and ACTH held at the Carlos Finlay Institute in Havana, Cuba, the Cuban government awarded the Carlos Finlay National Order of Merit to Elmer Henderson, M.D., Louisville, Ky., President of the American Medical Association, George Lull, M.D., Chicago, Secretary and General Manager of the American Medical Association, Tom Spies, M.D., chief of the Department of Nutrition, Northwestern University Medical School, Chicago, Mr. C. P. Loranz, secretary and general manager of the Southern Medical Association, Birmingham, Ala., and Paul de Kruif, Ph.D., Holland, Mich., science writer. The Cuban government was represented by Dr. Juan Antonio Rubio Padilla, Minister of Health of Cuba and Grand Chancellor of the Carlos Finlay National Order of Merit, who in presenting the awards spoke, in part, as follows:

"The supreme council meets to give public testimony of recognition to a group of American men of science whom it just incorporated into the order, decorating them with its insignia. Thus, before the eyes of all men the Finlay decoration is awarded to those who for their scientific merits or for their work in behalf of physicians or for their outstanding achievements in the field of science or for their services to humanity, have shown themselves worthy of this honor, and we hereby proclaim these virtues in these men."

de Kruif Spies Henderson Padilla Lull Loranz

El Journal de la A. M. A. se honra en presentar en esta página el retrato del Señor Dr. D. Juan Antonio Rubio Padilla, Ministro de Sanidad de Cuba, quien en nombre de su gobierno y en su carácter de Gran Canciller de la Orden Nacional de Mérito Carlos Finlay condecoró recientemente con la insignia de dicha Orden a los siguientes doctores americanos: Dr. Elmer L. Henderson, Presidente de la A. M. A. y Presidente de la Organización Médica Mundial, Dr. George Lull, Secretario de la A. M. A., Dr. Tom Douglass Spies, profesor de nutrición y de metabolismo en la escuela de medicina de la Universidad Northwestern de Chicago, Señor C. P. Loranz de Birmingham, Secretario de la Asociación Médica Southern y Dr. Paul de Kruif, escritor popular, de Holland, Mich.

Los ceremonias de la condecoración, se llevaron a cabo en el Instituto Carlos Finlay en la ciudad de la Habana, durante la Conferencia Panamericana sobre la cortisone y la ACTH, celebrada recientemente en dicha ciudad.

FEDERAL LEGISLATION

Housing and Community Facilities

A bill to provide housing and community facilities, including "hospitals and other places for the care of the sick," has been introduced by Senator Maybank of South Carolina. This bill, S. 349, proposes a national defense measure for establishing these and other facilities in defense areas. It provides for a hospital and health program to be administered by the Housing and Home Finance Administrator or other federal agency designated by the President. Representative Spence of Kentucky introduced H. R. 1272, which is similar to this bill. Hearings on these bills have already started in the Banking and Currency Committees.

Federal Aid to Medical Education

Representative Klein of New York introduced H. R. 1781, which would provide an emergency five year program of grants and scholarships for education in the fields of medicine, osteopathy, dentistry, dental hygiene, public health and nursing. This bill is identical with S. 337, introduced by a majority of the Senate Labor and Public Welfare Committee members, which was reported in a previous issue of THE JOURNAL.

Chiropractors in VA

H. R. 1368, introduced by Representative Magee of Missouri, would authorize the appointment of doctors of chiropractic in the Department of Medicine and Surgery of the Veterans Administration. Chiropractors holding degrees from schools approved by the Administrator, licensed to practice in one of the states, in Washington, D. C., or in the territories, and having practiced for at least two years, could be appointed to serve as doctors of chiropractic in the VA.

Military Personnel and Veterans

Mrs. Rogers, a Representative of Massachusetts, introduced H. R. 351, which would establish a Department of Veterans Affairs, so that Veterans Administration would become a department with a secretary of cabinet rank. An undersecretary and five assistant secretaries would perform duties prescribed by the secretary. One of the assistant secretaries would be designated as surgeon general. H. R. 1287, introduced by Representative King of California, proposes that dispensary

This summary was prepared by the Washington office of the American Medical Association.

treatment and hospital care, where accommodations are available in Army or Navy hospitals, be provided to retired personnel of the Army, Navy, Marine Corps and Coast Guard. Representative Boggs of Louisiana would provide the same services in his bill, H. R. 1532, except that the benefits would be available only to retired enlisted personnel.

Universal Military Training

Representative Vinson of Georgia introduced H. R. 1752, which would provide for the common defense and security of the United States and permit the more effective utilization of manpower resources by authorizing universal military service and training. This bill is similar to Substitute Bill S. 1, reported in THE JOURNAL February 3. Hearings on these bills are now proceeding in both the Senate and the House.

Miscellaneous

H. R. 1502 proposes to restore federal appropriations under the Hospital Construction Act for this fiscal year to $150,000,000. It is identical with H. R. 149, reported previously.

Representative Celler of New York introduced H. R. 1611, which would amend the Public Health Service Act to support research and training in poliomyelitis by establishing a National Poliomyelitis Institute in the Public Health Service.

To provide additional incentives for the discovery of a cure for cancer, heart disease and poliomyelitis, Representative Welch of Missouri introduced H. R. 1644. The bill would authorize the Surgeon General of the Public Health Service to award an annuity of $100,000 per year for life to the persons who first discover a general cure for cancer, heart disease or poliomyelitis "after the date of enactment of this act." Any annuities paid would be tax exempt.

STATE LEGISLATION

Arkansas

Bill Introduced.—H. 166, proposes to prohibit the sale of **barbituric** acid, and its derivatives, and except upon the written and signed prescription of a person holding a license issued by one of the medical boards, with certain exceptions relating to pharmacies and hospitals. Such prescriptions shall only be written in the course of the person's professional practice and upon personal contact with the person for whom they are prescribed.

California

Bills Introduced.—A. 512, to amend the workmen's compensation act, proposes that injured employees shall have the **right to choose** their **own physician** from a list to be created by the industrial accident commission of the state. A. 626, proposes to authorize the board of medical examiners to examine and license applicants for a license to practice **physical therapy,** which is defined to mean the treatment of any bodily or mental condition of any person by the use of the physical, chemical, and other properties of heat, light, water, or electricity, and by massage and active or passive exercise. The use of roentgen rays and radium, for diagnostic and therapeutic purposes, and the use of electricity for surgical purposes, including cauterization, are not authorized. S. 283, to amend the business and professions code, proposes the creation of a **board of naturopathic examiners.** Naturopathy is not specifically defined by the proposal but the bill does propose that the holder of a naturopathic physician's certificate shall be authorized to diagnose and to treat all human ailments and abnormalities by the use of such forces and substances as light, air, water, clay, heat, rest, diet, herbs, electricity, massage, Swedish movements, suggestive therapeutics, magnetism, physical and mental culture and further provides that nothing in the bill would permit the holder of a certificate to use general anesthetics or narcotics, with the further proviso that nothing shall prevent the use of a local analgesic when necessary to prevent suffering during any treatment authorized therein.

Connecticut

Bills Introduced.—H. 56, to amend the medical practice act, proposes, among other things, to permit the **registration of qualified physicians** who are not residents of the state but who are continuing their education in teaching hospitals in Connecticut. H. 91, proposes that any person who has been twice convicted of a violation of the provisions of the law relating to sex crime, by which violations any child under sixteen (16) years of age has been injured, shall be rendered **impotent by surgery.** S. 42, proposes regulations for the payment of **temporary disability** compensation benefits. S. 89, proposes the establishment of the **mental health** department and outlines its powers and duties.

This summary was prepared by the Bureau of Legal Medicine and Legislation.

Georgia

Bills Introduced.—S. 28, proposes a constitutional amendment which would **exempt from taxes** all hospitals which maintain facilities for charity cases, together with all of the real and personal property of such hospitals. S. 63, proposes an appropriation to the state board of education for creating a state educational research service to develop materials and units of instruction on the scientific facts in regard to the influence and **effect of alcohol** upon human health and behavior and on social and economic conditions, and related matters.

Indiana

Bills Introduced.—H. 166, proposes that persons lawfully inducted into the military service who, at the time of such induction, were licensed to practice a profession in the State, may have six months after the termination of their military service to apply for a **renewal license** without examination, reexamination, fine or penalty. S. 45, proposes the creation of a **Board of chiropractic examiners** and proposes that the philosophy of chiropractic maintains that normal transmission of nerve energy from brain cell to tissue cell constitutes normal function in tissue cell health. Interference, at the spine, through the normal transmission of energy from main cell results in lack of normal function in the tissue cell to the degree of interference disease. The x-ray, and all necessary procedure, to arrive at chiropractic analysis, may be utilized. Chiropractic is defined as the science of locating and removing interferences with nerve transmission in the spinal column without the use of drugs or surgery.

Massachusetts

Bills Introduced.—H. 1071, proposes the enactment of a **disability benefit** law. H. 1171, proposes to authorize the board of registration in medicine to grant licenses to practice **physical therapy,** which is defined as the treatment of any bodily or mental condition of any person by the use of the physical, chemical and other properties of heat, light, water, electricity, massage, and active and passive exercise. The use of roentgen rays and radium for diagnostic and therapeutic purposes and the use of electricity for surgical purposes, including cauterization, are not authorized. The proposal further provides that a physical therapist is a person who practices physical therapy, as above defined, under the prescription, supervision and direction of a person licensed in the state to practice medicine and surgery.

New York

Bills Introduced.—A. 561, proposes to restrict the retail sale of **lithium sodium** except upon prescription written by a person legally authorized to issue such prescription. A. 641, proposes to designate the board of medical examiners as the board of examiners in **physiotherapy.** A. 739 and S. 541, proposes an appropriation of $3,000,000 to devise a program to control and prevent **infantile paralysis** and to develop technics for the care, treatment and rehabilitation of persons suffering therefrom. A. 648, to amend the public health law, proposes the establishment of an **adult hygiene and geriatrics** division in the state department of health. A. 786 and S. 726, propose the creation of a temporary commission to investigate the nature, extent and effects of the use of **narcotic drugs** in the state. A. 889, proposes the creation of a state board of examiners for **psychology.** Under this proposal a person practices psychology when he renders to individuals, or to the public, any service involving the professional application of recognized principles, methods and procedures of the science and profession of psychology, or when he holds himself out as being able to, or undertakes by whatever means to evaluate, appraise or classify mental abilities, personality characteristics or personal or interpersonal maladjustments, or to perform psychological reeducation, psychological readjustment guidance or counseling, or to diagnose or to treat neuroses, mental aberrations and psychoses. S. 459, proposes to authorize the state commissioner of health to supervise and **license** unincorporated **maternity hospitals.** S. 727, proposes the establishment of a bureau of **narcotic control,** to, among other things, obtain data and information relative to the extent of drug addiction and the means by which it may be controlled.

Texas

Bill Introduced.—H. 72, proposes an amended and revised food, drug and cosmetic act which, among other things, would provide that a drug would be deemed to be misbranded if it is sold at retail and contains any quantity of amidopyrine, **barbituric acid,** pituitary, thyroid, or their derivatives, or if it contains a statement that it is to be dispensed or sold only on the prescription of a written physician, unless it is so sold on a written prescription signed by a member of the medical, dental or veterinary profession and its label bears the name and place of business of the seller, the serial number and date of the prescription, and the name of the member of the medical, dental or veterinary profession. Such prescription shall not be refilled except on written authorization of the prescriber.

West Virginia

Bills Introduced.—H. 65, proposes to amend the law relating to the membership of the **medical licensing board** of West Virginia by providing for membership thereon of three non-medical laymen. S. 4, to amend the osteopathic act, proposes, among other things, the **annual registration of osteopaths** and that as a prerequisite to annual registration, each osteopath shall furnish evidence of having completed a two-day educational, refresher course conducted by the West Virginia Osteopathic Society.

V 14
1951

STUDENT AMERICAN MEDICAL ASSOCIATION

OFFICIAL TRANSACTIONS OF THE STUDENT AMERICAN MEDICAL ASSOCIATION CONSTITUTIONAL CONVENTION

Student representatives from 47 medical schools in the United States met on Dec. 28 and 29, 1950, in the headquarters offices of the American Medical Association, 535 North Dearborn Street, Chicago, for the expressed purpose of drafting a constitution for and the organizing of a Student American Medical Association.

Constitution and By-Laws of the
Student American Medical Association
Adopted December 29, 1950

Constitution

Article 1.—Name and Object

Section 1.—The name of this association shall be the Student American Medical Association.

Section 2.—The objects of this association shall be to advance the profession of medicine, to contribute to the welfare and education of medical students, to familiarize its members with the purposes and ideals of organized medicine, and to prepare its members to meet the social, moral, and ethical obligations of the profession of medicine.

Article 2.—Organization

Section 1.—The Association shall be composed of academic societies chartered by the House of Delegates of the Student American Medical Association.

Section 2.—An academic society may be formed at any medical school in the United States approved by the Council on Medical Education and Hospitals of the American Medical Association, provided that there shall be only one such academic society of the Student American Medical Association in any such school.

Section 3.—Any group of students, organized within an approved medical school, and constituting not less than ¼ of the total student body of such school, or 85 students, whichever is the smaller number, may be admitted to the Association as an academic society, upon a ⅔ vote of the House of Delegates of the Student American Medical Association, on the basis of a petition, signed by the officers of the petitioning academic society and the Dean of the school. The petition shall indicate that all of the members of the group possess the qualifications set forth in Article III, below, the names of the members of the Advisory Committee, and any other information requested by the Student American Medical Association.

Section 4.—Each academic society shall have equal rights and be entitled to equal representation in the Student American Medical Association House of Delegates.

Section 5.—The charter of an academic society may be suspended or revoked by a ¾ vote of the Student American Medical Association House of Delegates upon written recommendation of the local advisory committee or the Executive Council. Such academic society shall be notified by the Executive Council of this recommendation not later than thirty days prior to the next regular session of the Student American Medical Association House of Delegates. Suspension or revocation shall take effect immediately following an affirmative vote of the Student American Medical Association House of Delegates and shall be effective until the society is re-admitted in accordance with the procedure set forth in Article II, Section 3, above.

Article 3.—Membership

Section 1.—Membership in the Student American Medical Association shall be granted any member of an academic society which is in good standing.

Section 2.—(A) Academic societies shall determine the qualifications of their own members except that no such society may refuse membership on the basis of race, religion, color, or sex, and except that no such society may admit other than regularly enrolled students of medicine to membership.

(B) Academic societies may admit interns to membership at their discretion.

Article 4.—Officers: Executive Branch

Section 1.—The officers of the Association shall be a President, Vice-President, Executive Secretary and Treasurer.

Section 2.—Executive authority shall reside in an Executive Council composed of the officers, seven student councilors no two or more of whom shall be from the same academic society, and three senior councilors, each member having one vote. The Executive Secretary shall have no vote in the meetings of the Executive Council.

Section 3.—The President, Vice-President and Treasurer, and the student councilors, shall be elected at the annual meeting of the House of Delegates, for a term of one year, or until the successors are elected and installed.

Section 4.—The senior councilors and the Executive Secretary shall be appointed annually by the Board of Trustees of the American Medical Association.

Section 5.—The Executive Council shall meet at least twice yearly for the transaction of business. The President of the Association shall preside at all meetings of the council.

Section 6.—The Executive Council shall have charge of the property and financial affairs of the Association and shall perform such duties as are prescribed by law for directors of corporations or as may be prescribed in this constitution.

Section 7.—The Executive Secretary shall maintain offices at the Headquarters of the American Medical Association and shall perform such duties as are delegated to him by the Executive Council.

Section 8.—It shall be the duty of the Executive Council to appoint such committees as are necessary for the transaction of business.

Article 5.—Election of Officers: Eligibility

Section 1.—At the annual meeting of the House of Delegates, a nominating committee, appointed by the executive council, and composed of seven delegates, no two or more of whom may be from the same academic society, shall present the names of at least two nominees for each office and for each student seat on the council at the first session. Additional nominations may be made from the floor at that time.

Section 2.—The election of officers and student councilors shall be held on the last day of the session. Each delegate present shall be entitled to one vote.

Section 3.—Any member of the Association shall be eligible for election provided he has completed his first year of medicine and is or will be enrolled in medical school during his full term of office.

Section 4.—Candidates receiving a simple majority of the votes cast in the House of Delegates will be declared elected.

Section 5.—The executive council shall have the power to fill from the membership any vacancy occurring among the officers or student councilors until the next annual session of the House of Delegates.

Article 6.—Advisory Committee of Academic Societies

Section 1.—Each academic society shall have an advisory committee composed of the Dean of the medical school or his appointed representative, two faculty representatives, a county medical society representative, and a state medical society representative.

Section 2.—The faculty representatives shall be elected by each academic society.

Section 3.—The county medical society representative shall be appointed by the local county medical society.

Section 4.—The state medical society representative shall be appointed by the state medical society.

Section 5.—The advisory committee shall meet at least once a year with the officers of the academic society and it shall be the committee's purpose to advise and discuss with the academic society matters of policy and methods of procedure.

Section 6.—The term of office of each member of the committee, with the exception of the Dean or his appointed representative, shall be fixed by each academic society.

ARTICLE 7.—HOUSE OF DELEGATES: ANNUAL MEETINGS

Section 1.—The legislative body of the Association shall be the House of Delegates, composed of one duly elected delegate from each academic society. All other members of the Association shall be privileged to attend any meeting of the House of Delegates and shall have the privilege of the floor by the consent of the House of Delegates but not the right to vote. The officers and councilors of the Association shall be ex officio members of the House of Delegates without the right to vote.

Section 2.—At least two weeks prior to the annual meeting, the president of each academic society shall certify to the Executive Secretary the name of the delegate and alternate from his academic society.

Section 3.—The President of the Association shall preside at all meetings of the House of Delegates. In case of his inability to do so, the Vice President shall preside.

Section 4.—Fifty per cent of the delegates shall constitute a quorum for the transaction of business.

Section 5.—The House of Delegates shall meet at least once each year at such time and place as shall be set by the Executive Council.

Section 6.—Business, except where otherwise specified in this constitution, shall be transacted by a simple majority vote.

ARTICLE 8.—LIAISON WITH AMERICAN MEDICAL ASSOCIATION

Section 1.—The House of Delegates of the Student American Medical Association shall elect two members of the Student American Medical Association as its representatives to the American Medical Association House of Delegates.

Section 2.—These representatives shall attend all sessions of the American Medical Association House of Delegates and render such reports as may be requested.

Section 3.—These representatives are granted the authority to exercise such privileges as are extended to them by the American Medical Association House of Delegates.

ARTICLE 9.—FINANCES

Section 1.—The Executive Council with the approval of the House of Delegates may raise funds by levying annual dues on each academic society on the basis of total society membership as of April 1, the amount to be specified annually in the By-Laws by the House of Delegates.

Section 2.—Funds may be raised for publications of this association from any source approved by the House of Delegates.

Section 3.—Funds may be expended by order of the Executive Council on checks signed by the Executive Secretary to defray expenses of the Association and its publications and for furthering the purposes of the Association.

Section 4.—Necessary expenses of the student members of the Executive Council incurred in attending meetings of the Executive Council, and necessary expenses of the *two* student representatives to the American Medical Association meetings shall be paid from the treasury of the national student organization. The expenses incurred by local academic society delegates to the national association meetings shall be the responsibility of the local society.

ARTICLE 10.—INSIGNIA AND PUBLICATIONS

Section 1.—There shall be a seal and such insignia as are adopted by the Executive Council and these shall be recognized as official.

Section 2.—There shall be a publication at such time as seems expedient by the Executive Council, the name of which shall be the Journal of the Student American Medical Association. Matters pertaining to this publication and its editorial policy shall be decided by the Executive Council. Until such a time, space made available to the Student American Medical Association by the Journal of the American Medical Association shall be utilized as the official organ of the Student American Medical Association.

ARTICLE 11.—AMENDMENTS, RATIFICATIONS AND BY-LAWS

Section 1.—The Constitution may be amended by a ¾ vote of the delegates present at any annual meeting provided all proposed amendments are submitted to the Executive Secretary at least two months prior to such meeting and are in turn submitted to the academic societies at least one month prior to the meeting of the House of Delegates.

Section 2.—Such By-Laws as are necessary to supplement this Constitution shall be approved at the annual meeting of the House of Delegates.

Section 3.—Academic societies or their duly appointed representatives who shall ratify this Constitution within two months of the date of approval shall be considered charter members.

By-Laws

CHAPTER I.—ORDER OF BUSINESS

The order of business at the annual meeting shall be:

1. Roll call
2. Appointment of committees
3. Reports of officers
4. Report of nominating committee
5. Reports of delegates to A.M.A. House of Delegates
6. Introduction and addresses of guests
7. Introduction of resolutions and memorials
8. Reports of committees
9. Adoption of resolutions
10. New business
11. Election of officers and councilors and delegates to American Medical Association
12. Installation of officers
13. Adjournment

CHAPTER II.—ANNUAL DUES

The annual dues for the coming year shall be $1 per member to be assessed as stated in the Constitution.

ELECTION OF TEMPORARY CHAIRMAN AND SECRETARY

Mr. Harold Sterling of Yale University School of Medicine was elected temporary chairman and Mr. Sheldon Burman of Syracuse School of Medicine temporary secretary.

CREDENTIALS COMMITTEE

The following Credentials Committee was appointed to establish the eligibility of the delegates in attendance:

Mr. Stanley Wilkinson, College of Medical Evangelists
Mr. Frederick Sabin, Albany Medical College
Mr. Sterling Batte, Mississippi School of Medicine

The Credentials Committee reported the credentials of all delegates in order and moved that they be seated. Motion adopted.

DRAFTING CONSTITUTION

The primary purpose of the conference being to draft a constitution, the Chairman appointed six committees and charged them with this specific responsibility. (Committees and membership are listed as Appendix A.)

ADDRESS OF WELCOME

(Dr. George F. Lull)

In behalf of the House of Delegates and the Board of Trustees of the American Medical Association, I wish to extend to each one of you a cordial welcome. I trust that your deliberations here during the next two days will result in a strong representative student medical organization.

The House of Delegates and the officers of the American Medical Association, who have given considerable thought to this matter, realize that the medical student hears nothing about organized medicine except what he reads in the press, which as a rule talks only about our fight against the socialization of medicine. As a matter of fact, that is only one of the minor things, as you will learn today, that the A.M.A. does. The A.M.A. has for its motto the improvement of medical care and the furtherance of the science and art of medicine. Socialized medicine is something we all object to. We do not want any part of it, and we have to fight it in order to protect ourselves and the general public.

V 14
1951

The members of the House of Delegates feel that there should be some tie connecting the men who are to become a part of organized medicine very soon and those who are already engaged in the practice of medicine. You do not get this as a rule in medical school. In your internships and residencies you hear about it but have no contact with the work which is being carried on by the county and state societies and the American Medical Association. By the formation of a student association we hope that there will be a tie binding the student and the licensed practitioner.

The American Medical Association, notwithstanding what has been said by our enemies, is a very democratic organization. Its affairs are in the hands of a House of Delegates, made up of men elected by their respective states who have charge of all of the affairs of the Association and all of its policies. The House of Delegates elects nine trustees. Each is elected for a term of five years and may serve only two terms. These nine trustees handle the affairs of the Association and carry out the policies of the House of Delegates, or in an emergency develop policies between the meetings of the House of Delegates, which meets twice a year. That certainly is a democratic process. Those of you who will have the opportunity to visit the House of Delegates will see a fine body of men, representative of the medical profession in America, just as you represent the medical students in America.

We hope that during the next two days you will be able to formulate a constitution that you will all be proud of, that you can go back to your schools and tell your colleagues what you have done and proceed to organize an academic society in every medical school in the United States. You are to have the opportunity to see for yourselves what goes on in the A.M.A. headquarters. Practically everything you will see here—each Council, each Bureau—has as its objective something for the advancement of the medical profession or the advancement of the health of the people in the United States.

I am confident that the Student American Medical Association can make a significant contribution to medical students, practicing physicians and the general public. We are certainly glad to have you here. Thank you.

REPORTS OF COMMITTEES

Since all committee reports dealt with articles of the Constitution, we submit the Constitution of the Student American Medical Association as adopted by the unanimous vote of all delegates.

RATIFICATION OF CONSTITUTION

After explaining Section 3 of Article XI, the delegates were given the opportunity to ratify the Constitution as adopted or to defer ratification. Those deferring ratification were given the privilege of becoming charter members provided ratification was forthcoming within a period of 60 days. Thirteen schools ratified the Constitution as adopted; 34 schools deferred ratification.

ELECTION OF OFFICERS

Kettner of Kansas moved that: Representatives who either approve or ratify the Constitution as presented shall be given full privilege of nominating officers, voting and holding office. In the event that the academic society of an elected officer shall fail to ratify the Constitution within two months of the date of adoption, his election shall be declared null and void and the vacancy thus created shall be filled by appointment by the Executive Council at its next meeting. Motion adopted.

Before proceeding to nominate and elect officers for the coming year, it was necessary to establish the date of the next meeting to determine whether senior medical students were eligible to hold office this year.

The Conference preferred to hold the next annual meeting in December 1951. This action eliminated the eligibility of Seniors, inasmuch as they would be able to serve for a period of only six months, which would be contrary to Section 3, Article V of the Constitution. The class standing of each delegate was established to assist delegates in making their nominations.

From nominations made from the floor the following provisional officers, councilors and delegates to the A.M.A. House of Delegates were elected:

President: Warren Mullen, University of Michigan Medical School
Vice President: Harry Sandberg, University of Illinois College of Medicine
Treasurer: David Buchanan, University of South Dakota School of Medical Sciences

Executive Council

William Davenport, University of Arkansas School of Medicine
Herbert Sperling, Boston University School of Medicine
John Looper, Medical College of Georgia
Donald Brugger, Ohio State University School of Medicine
James Henderson, University of Oregon Medical School
Charles Wilson Jr., University of Texas School of Medicine
Howard Christian, Tufts College Medical School

Delegates to the A. M. A. House of Delegates

Warren Mullen, University of Michigan Medical School
Harry Sandberg, University of Illinois College of Medicine

NEW BUSINESS

Kettner of Kansas moved that: Section 4 of Article VII of the proposed Constitution pertaining to the order of business of the annual meeting be incorporated in the By-Laws of this organization. Seconded and adopted.

Kettner of Kansas moved that the following be incorporated in the By-Laws of this organization: The annual dues for the coming year shall be $1 per member to be assessed as stated in the Constitution. Seconded and adopted.

Kettner of Kansas moved that: The Executive Council be given the authority to establish a Committee on By-Laws to draw up such necessary By-Laws as this organization may need and report to the House of Delegates at the next annual meeting. Seconded and adopted.

Sterling of Yale moved that: The Executive Council appoint the following committees and others as necessary to carry out the program of this organization as authorized by the Executive Council and to render a report at the next annual meeting:

Committee on Publications
Committee on Internships
Committee on Selective Service
Committee on Education
Committee on Liaison with the A. M. A.
Committee on Conventions

Seconded and adopted.

Sterling of Yale moved that: A letter of appreciation be sent to Dr. Walton Van Winkle Jr., and a vote of thanks extended to the staff and officers of the American Medical Association for making the conference a success.

The House of Delegates adjourned at 5:15 p. m.

APPENDIX A

COMMITTEE APPOINTMENTS

Committee on Organization and Membership Articles 1-2-3

Sheldon Burman....Syracuse-Chm.
Herbert Sperling.....Boston
Donald Brugger.....Ohio State
Stanley Wilkinson..Medical Evang.
W. M. Smith.....U. of Chicago
R. W. Miller.....Hahnemann
John D. Hummel.....Louisville
Philip Whittlesey.....Southwestern

Committee on Officers and Elections Articles 4-5

Gerald D. LaVeck
U. of Wash.-Chm.
William P. Crowley.....Wisconsin
Howard Christian.....Tufts
William Clarke.....Meharry
Frederick Sabin.....Albany
Richard A. Snapp.....Indiana
William Bender.....California
Marcus Gulley.....Bowman Gray

Committee on Advisory Committees Article 6

William Hensold.....Illinois-Chm.
Paul Schrode.....Pennsylvania
Jerome Gold.....Chicago Med.
Hillmon Castle.....Duke
Gerard Obert.....Pittsburgh
Charles Wilson.....Texas
Jesse W. Cumbia.....Virginia
James Henderson.....Oregon

Committee on Meetings, Delegates & Conventions Articles 7-8-11

John W. Looper.....Georgia-Chm.
Wm. Davenport.....Arkansas
Burton Stulberg.....Buffalo
Sterling Batte.....Mississippi
Bart Heffernan.....Loyola
Stanley Wallace.....New York U.
William Bross.....Creighton
Melvin Kettner.....Kansas

Committee on Finances Article 9

David Buchanan...S. Dakota-Chm.
Howard Barkley.....Baylor
John Jackson.....Jefferson
Rex Kenyon.....Oklahoma
Buris Boshell.....Alabama
Harold Sterling.....Yale
Paul Finley.....Minnesota

Committee on Publications Article 10

Warren Mullen.....Michigan-Chm.
Robert Johnson.....Nebraska
William Mathews.....Maryland
Lawrence Odland.....South. Calif.
Ray Browning.....Tulane
Howard Carter.....Iowa
William Collins.....Dartmouth
Bernard Moore.....Marquette

MEDICAL NEWS

ALABAMA

Influenza.—According to the U. S. Public Health Service, the Alabama State Department of Health reported during the week ended January 20 a localized outbreak of 250 cases of influenza in Gordo, which has a population of 1,200.

CALIFORNIA

Society News.—The 1951 officers of the Beverly Hills Medical Society include Dr. James C. Doyle, president; Dr. Clyde O. Wood, vice president, and Dr. Esther M. Kirk, secretary-treasurer.

Personals.—Dr. Egerton L. Crispin, Los Angeles, has been named to the Board of Fellows of Claremont College in Claremont.——Dr. John L. Barritt, San Diego, has been appointed medical director of the California Industrial Accident Commission.

Conference in Clinical Ophthalmology.—Stanford University School of Medicine, San Francisco, will present a postgraduate conference in clinical ophthalmology, March 26-30. Registration will be limited to 30 physicians. Instructors will be Drs. A. Edward Maumenee Jr., Dohrmann K. Pischel, Jerome W. Bettman, Earle H. McBain, Arthur J. Jampolsky and Max Fine. Information may be obtained from the Dean, Stanford University School of Medicine, 2398 Sacramento Street, San Francisco 15.

Los Angeles Opens Physicians Home.—The Los Angeles County Physicians Aid Association dedicated its Physicians Home in Los Angeles January 7. Plaques were presented to two honorary members, Mr. Jean Hersholt and Mr. Jim Sherman. For many years the association has been working for a home in which to care for doctors and their wives or widows who find themselves in their later years without funds or a comfortable home. Purchase of the home and its spacious grounds, at 3500 West Adams Boulevard, was made with funds contributed by many doctors for a period of years.

CONNECTICUT

Annual Cancer Conference.—The fourth annual State Cancer Conference, sponsored by the Connecticut Cancer Society, the State Association of Tumor Clinics and the State Medical Society, will be held at the Hotel Taft in New Haven March 7 from 1: 30 to 5: 45 p. m. Visiting speakers include Dr. Cornelius P. Rhoads, New York, who will speak on "Present Status of Chemical and Biologic Agents in the Treatment of Cancer," and Dr. Archie L. Dean, New York, whose subject will be "Cancer of the Urinary Tract." The first showing will be made of "Gastro-Intestinal Cancer—The Problem of Early Diagnosis," a color motion picture produced in 1950 by the American Cancer Society and the National Cancer Institute.

GEORGIA

Society News.—At the November meeting of the Atlanta Eye, Ear, Nose and Throat Society the following officers were elected for 1951: Dr. Edward S. Wright, president and Dr. F. Phinizy Calhoun Jr., vice president. Dr. James T. King was reelected secretary and treasurer.

County Society Elects Four Honorary Presidents.—At its annual banquet in Atlanta January 4 the Fulton County Medical Society made four of its outstanding physicians honorary presidents and presented each with a jeweled President's Key. Those honored were Drs. Charles G. Giddings Sr., Luther C. Fischer, F. Phinizy Calhoun Sr. and Allen H. Bunce. Each recipient was eulogized for his loyal service to the society and his devotion to the cause of medicine.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.

ILLINOIS

Fluoridation of Water.—Addition of fluoride compounds to public water supplies to decrease the rate of tooth decay has been given qualified endorsement by the State Department of Public Health. After detailed studies of the effect of fluorides naturally contained in drinking water or artificially added, the health department has limited its approval of use of the decay prevention compound to communities where (1) there is a genuine public desire for this treatment to reduce tooth decay, (2) the responsibility for the treatment is understood as to possible personal hazards to waterworks operators and as to possible toxic effects to consumers "from overdoing," (3) local waterworks conditions will provide for the addition of fluorides with reasonable control, maintenance and operation and (4) engineering plans and specifications for the installation and control of fluoridation facilities have been prepared and submitted to the State Department of Public Health for review and approval. Endorsement of the fluoridation program under similar conditions has also been given by the Illinois State Dental Society, the American Dental Association, the American Water Works Association and the State and Territorial Dental Health Directors.

Chicago

Fellowship in Pediatric Research.—The Chicago League for Nephritic Children announces the establishment of a fellowship in the department of pediatric research, Michael Reese Institute for Medical Research, Michael Reese Hospital. Those interested should write to Dr. B. M. Kagan, Director, Department of Pediatric Research, Michael Reese Hospital, Chicago 16.

Twenty-Seventh McArthur Lecture.—Dr. Alvin F. Coburn, director of the Rheumatic Fever Research Institute of Northwestern University Medical School, will deliver the twenty-seventh Lewis Linn McArthur Lecture of the Frank Billings Foundation of the Institute of Medicine of Chicago at the Palmer House February 16 at 8: 00 p. m. His subject will be "The Host Problem in Rheumatic Fever."

Emeritus Professors.—Two faculty members of the University of Illinois College of Medicine were recently given emeritus standing on reaching their sixty-eighth birthdays. Dr. Vernon C. David, Evanston, had been Rush clinical professor of surgery since 1941. He had served on the faculty of the Rush Medical College since 1909, when he was appointed assistant in surgery. Dr. Rudolph J. E. Oden, Lincolnwood, associate professor of surgery, had been a member of the faculty since 1925, when he began teaching anatomy. Since 1919 he has been an attending surgeon on the staff of Augustana Hospital.

Discontinues Legal Medicine Department.—The department of criminology and legal medicine in the University of Illinois College of Medicine has been discontinued. The action was taken on the recommendation of Dr. Sophie S. Sloman, head of the department. The function of the department can be adequately taken over by the new department of preventive medicine, by the department of psychiatry and by the proposed department of forensic pathology, according to Dean Stanley W. Olson. Dr. Sloman will retain her university appointment as clinical assistant professor of psychiatry; she has resigned as superintendent of the Institute for Juvenile Research. The department of criminology and legal medicine is an outgrowth of the department of social hygiene, criminology and medical jurisprudence, which was established in the college in 1919.

V 14
1951

KENTUCKY

School Health Director Appointed.—Dr. Harry H. Henderson, Fredericksburg, Va., contagious disease officer for the Virginia Health Department, has been named director of the division of school health of the state department of health. One of his duties will be to advise the state department of education on the administration of the school health code. This code, which was adopted three years ago, requires courses in health and physical education and physical examinations for children entering the first, fifth and ninth grades.

Pediatric Seminars.—A series of seven Friday evening sessions on child care will be held at Good Samaritan and St. Joseph hospitals, Lexington, during February and March. In addition to clinical case presentations, there will be round tables. Physicians within a 75 mile radius will attend, and members of the American Academy of General Practice will receive 14 credit hours. The program is presented by the Kentucky Child Health Foundation under the auspices of the University of Louisville School of Medicine. Members of the pediatrics department and the Lexington fellows of the American Academy of Pediatrics will conduct the course with Dr. Alex J. Steigman, professor of child health, serving as chairman.

LOUISIANA

Annual Graduate Assembly.—The annual meeting of the New Orleans Graduate Medical Assembly will be held March 5-8 with headquarters at the Municipal Auditorium. The program will include a panel discussion on ACTH and cortisone, talks on trauma and neoplastic disease, a review of the application of radioactive isotopes in medical practice, clinicopathological conferences and round-table luncheon discussions. Daily demonstrations of medical and surgical procedures will be telecast from Charity Hospital to the auditorium through the courtesy of Smith, Kline & French Laboratories, Philadelphia. Guest speakers include:

George S. Baker, Rochester, Minn., Management of Head Injuries.
Arlie R. Barnes, Rochester, Minn., Effect of Cortisone and ACTH on Acute Rheumatic Fever.
Marshall H. Brucer, Oak Ridge, Tenn., Radioactive Iodine in Thyroid Carcinoma.
Jerome W. Conn, Ann Arbor, Mich., Clinical Implications of the Selyè Alarm Reaction.
Austin I. Dodson, Richmond, Va., Modern Therapy of Urinary Tract Infections.
Paul C. Hodges, Chicago, Place of Roentgen Pelvimetry in Obstetrics.
John L. McKelvey, Minneapolis, Female Generative Tract Tuberculosis.
John M. McLean, New York, Ophthalmologic Aspects of Thyroid Exophthalmos.
Henry B. Orton, Newark, N. J., Significance of Hoarseness.
Newell W. Philpott, Montreal, Blood Changes Which Predispose to Shock in the Postoperative or Postdelivery Phase.
Donald M. Pillsbury, Philadelphia, Physiological Principles in the Management of Dermatitis.
H. Marvin Pollard, Ann Arbor, Mich., Recent Additions to Diagnostic Aids in Gastric Carcinoma.
Theron G. Randolph, Chicago, Fatigue, Myalgia and Mental Symptoms of Allergic Origin.
Stanley P. Reimann, Philadelphia, Attempts at the Chemotherapy of Cancer.
Cornelius P. Rhoads, New York, Radical Surgery for Cancer.
Harold A. Sofield, Oak Park, Ill., Treatment of Deformities of Infantile Paralysis.
Albert V. Stoesser, Minneapolis, Use of Cortisone and ACTH in Diseases of Children.
C. Stuart Welch, Boston, Immediate Management of Massive Hemorrhage from the Upper Gastrointestinal Tract.
Nathan A. Womack, Iowa City, Benign Lesions of the Breast.

MASSACHUSETTS

Annual Morrison Lecture.—Dr. Charles K. Friedberg, Columbia University College of Physicians and Surgeons, New York, will deliver the annual Hyman Morrison Lecture March 22 at the Dowling Amphitheater of Boston City Hospital on "Electrolytes and Congestive Heart Failure." The lecture is sponsored by the two undergraduate medical chapters of Phi Lambda Kappa at Tufts College Medical School and Boston University School of Medicine, respectively.

New Chronic Disease Hospital.—The state has begun construction of a chronic disease hospital at Franklin Park, Jamaica Plain, on a site contributed by the City of Boston. The 12 story hospital will provide facilities for treatment of chronic diseases, conducting research and screening patients with major diseases before they have progressed to the incurable stage. It will also be a teaching center for students through its affiliation with Harvard, Tufts and Boston University medical schools. Dr. Alton S. Pope, deputy commissioner of health, says that one in every six Bay State residents has a disabling chronic illness. Thus chronic disease "is a major factor in causing families to seek public relief." Moreover, there is a yearly income loss of nearly $150,000,000 in the state as a result of chronic illness. Dr. William H. H. Turville, Revere, of the Tuberculosis Division, Massachusetts Department of Public Health, has been designated as superintendent of the new hospital.

MONTANA

State Association Interim Meeting.—This meeting of the Montana Medical Association will be held at the Placer Hotel in Helena March 16-17. The scientific program will be presented March 17. Dr. Frank B. Queen, Portland, Ore., has been invited to speak on "The Problem of Thyroid Cancer."

NEBRASKA

Public Health Association Formed.—The Nebraska Public Health Association was formed at a conference in Lincoln, November 20-21. Registration for the two day sessions was 234 persons. Officers of the new association are Dr. Roland H. Loder, Lincoln, president; R. M. Babcock, president-elect; Mrs. O. L. Webb, secretary, and R. B. Willard, treasurer.

Physicians Regional Meeting.—The Nebraska Regional Meeting of the American College of Physicians will be held in Omaha on February 17, under the governorship of Dr. Joseph D. McCarthy, college governor for Nebraska. The scientific session, which begins at 2:00 p. m. in the Hotel Paxton, includes:

John D. Hartigan, Omaha, Myxedema.
Robert S. Long and Eugene E. Simmons, Omaha, Liver and Estrogen Metabolism: Report of 50 Cases.
William J. Reedy and Harold N. Neu, Omaha, Comparative Study of Vasodilators in Peripheral Vascular Disease.
LeRoy H. Sloan, Chicago, Minor Symptoms, Major Disease.
A. Ross McIntyre, Omaha, Investigation of Prolonged Oral Administration of Procaine-Amide (Pronestyl).
Ernest L. MacQuiddy, Omaha, Some Studies in Digestion.
E. Burkett Reed, Lincoln, Treatment of Leukemia.

After the scientific session an informal dinner will be held. Dr. Sloan, regent, and Mr. Edward R. Loveland, Philadelphia, executive secretary of the college, will be the guest speakers.

NEW YORK

Doctors, Dentists and Lawyers Meeting.—A combined dinner meeting of the Broome County Medical Society, Broome County Dental Society and Broome County Bar Association was held January 31 in Binghamton. Dr. Louis H. Bauer, Hempstead, Chairman of the Board of Trustees of the American Medical Association and secretary of the World Medical Association, spoke on "The World Situation in Medicine."

Postgraduate Lectures.—Dr. Richard H. Lyons, Syracuse, will speak before the Cayuga County Medical Society at a meeting February 15, 8:30 p. m., at Auburn City Hospital on "Use and Abuse of Newer Drugs." The Medical Society of the County of Madison will hear a postgraduate lecture, "Common Clinical Errors in the Care of the Elderly Patient," by Dr. Frederic D. Zeman, New York, at their meeting February 15, 8:30 p. m., at the Hotel Oneida in Oneida. This instruction is provided by the Medical Society of the State of New York, with the cooperation of the New York State Department of Health.

New York City

Sixth Harvey Lecture.—Dr. Severo Ochoa, professor of pharmacology and chairman of the department, New York University College of Medicine, will deliver the sixth Harvey Lecture of the current series at the New York Academy of Medicine February 15 on "Enzyme Studies in Biologic Oxidations and Synthesis."

Dr. Cline to Speak at Town Hall.—Dr. John W. Cline, San Francisco, President-Elect of the American Medical Association, will speak at Town Hall February 17 at 11 a. m. on "The Case Against Socialized Medicine."

Friday Afternoon Lectures.—The remaining program for the Friday Afternoon Lectures of the New York Academy of Medicine, given at 4: 30 p. m. for physicians, is as follows:

March 2, William B. Parsons, New York, The L. Duncan Bulkley Lecture: Carcinoma of the Pancreas and Carcinoma of the Ampulla of Vater.
March 9, David T. Graham, New York, Cutaneous Vascular Changes and Skin Disease in Relation to Life-Stress.
March 16, Horace L. Hodes, New York, Acute Mercury and Lead Poisoning in Infants and Their Treatment with Bal.
March 30, George Baehr, New York, Influence of Cortisone and Adrenocorticotropin in Disseminated Lupus Erythematosus.
April 6, Irving S. Wright, New York, An Evaluation of the Use of Anticoagulants in Medical Practice.
April 13, Nolan D. C. Lewis, New York, Effects of Frontal Lobe Interference in Animals and Man.
April 20, Forrest E. Kendall, Ph.D., New York, Relation Between Serum Lipids and Arteriosclerosis.
April 27, Harold M. Marvin, New Haven, Conn., Etiology, Recognition and Management of Anginal Heart Failure.

Dr. La Chapelle Heads Medical Center Unit.—Dr. Clarence E. de la Chapelle has been appointed director of the Division of Affiliated and Regional Hospitals, a newly created division of the New York University-Bellevue Medical Center. He will coordinate the teaching program carried forward at 20 hospitals now affiliated with the medical center for the training of undergraduate medical students as well as physicians taking postgraduate studies. Eight of the hospitals affiliated with the medical center under the new division are located in New York City. These are Beekman-Downtown, Beth Israel, Lenox Hill, Irvington House for cardiac children, New York Eye and Ear Infirmary, St. Vincent's, Willard Parker and Gouverneur. The others are located in suburban or rural areas within 100 miles of New York and are members of the center's Regional Hospital Plan. They are located in New Jersey, New York, Connecticut and Pennsylvania. Dr. La Chapelle was appointed a professor of medicine and associate dean of New York University Post-Graduate Medical School in 1948, after having served on the faculty of New York University College of Medicine for 25 years.

OHIO

Dr. Goldblatt to Lecture.—Dr. Harry Goldblatt of the Institute for Medical Research of Cedars of Lebanon Hospital, Los Angeles, will address the staff of the Veterans Administration Hospital, Cleveland, February 19 at 6: 00 p. m. on "Renal Origin of Hypertension." All interested physicians are invited.

Museum to Have Education Department.—Cleveland Health Museum announces the appointment of Winfield G. Doyle, Ed.D., to the newly created position of curator of education. Increasing demands in the form of loans, guided tours, special exhibits, lectures and films have made it necessary to develop a separate department of education. Dr. Doyle is expected to begin a series of popular publications dealing with such topics as family life, mental health and industrial health. He has been associate curator, department of education, American Museum of Natural History, since 1946. His appointment has been made possible by funds appropriated by the Cleveland Foundation, the Hanna and Beaumont funds and interested persons.

PENNSYLVANIA

Medical Society Tabulates Information for Defense.—The Medical Society of the State of Pennsylvania is tabulating information on questionnaires it sent to the 16,000 registered physicians in the state. The questionnaires contain pertinent data concerning each doctor for the use of military and civil defense planners. The information is being made available to the Advisory Committee to Selective Service, the Committee on Procurement and Assignment and the Committee on Emergency Disaster Medical Service.

Conference of Secretaries and Editors.—The part Pennsylvania physicians will take during the national emergency was discussed at the annual conference of secretaries and editors of county medical societies comprising the Medical Society of the State of Pennsylvania in Harrisburg February 1-2. Speakers discussed civil defense, medical problems facing the current session of the state legislature, voluntary health insurance and plans to defeat proposals aimed at socializing the medical profession. Dr. John W. Cline, San Francisco, President-Elect of the American Medical Association, spoke on "The Medical Welfare of Our Nation."

Pittsburgh

Emmerling Memorial Lecture.—The Charles and Karl Emmerling Memorial Lecture under the auspices of the Pittsburgh Academy of Medicine will be given February 13 at 9 p. m. in the academy chambers. Dr. R. Philip Custer, director of the laboratories of Presbyterian Hospital, Philadelphia, will speak on "Variants of Chronic Granulocytic Leukemia." An informal subscription dinner will be held in honor of Dr. Custer at the Pittsburgh Athletic Club at 6: 30 p. m.

Anathan Research Fellowship.—The Bessie Frank Anathan Research Fellowship for the study of research in medical sciences has been established at Montefiore Hospital by Mrs. S. J. Anathan of Pittsburgh. The fellowship will be made available through a trust fund set up by her with a grant of $50,000, which will insure an annual award of $2,500. The fellowship will be open to postgraduate medical students in the United States. The initial award will be granted in or before July of this year. Mrs. Anathan is a member of the board of directors of the hospital.

TEXAS

Outbreak of Typhoid.—According to the U. S. Public Health Service, Dr. George W. Cox, state health officer, has reported 17 cases of typhoid in recent weeks from a single county. These cases were principally in children who had attended a banquet. The vehicle of infection is thought to have been food. Only four cases of the disease had been reported in this county over a period of six years prior to the present epidemic.

Name University Laboratory Buildings.—The Regents of the University of Texas have officially named the three major laboratory buildings at the Medical Branch in Galveston. The building erected in 1890 is to be named in honor of Ashbel Smith, M.D. (1805-1886), a graduate of Yale, first surgeon general of the Republic of Texas, dean of the Texas Medical College at Galveston, organizer of the University of Texas and first chairman of its board of regents. The laboratory building completed in 1931 has been named in honor of William Keiler, F.R.S.E. (1861-1931), the first professor of anatomy at the University of Texas Medical Branch from 1890-1931, dean of University of Texas School of Medicine from 1922-1926 and president of the Texas State Medical Association. The laboratory building now being completed is to be named in honor of Gail Borden (1801-1874), pioneer Texas scientist and nutritionist, first newspaper publisher in Texas, planner of the city of Galveston and pioneer researcher in nutrition and food preservation.

TENNESSEE

Personal.—Dr. Wallace P. Moore, county jail physician and director of the former Shelby County Health Department, retired December 1 after nearly 32 years' service to the city and county in health work.

Haggard Memorial Lecture.—Dr. Waldo E. Nelson, professor of pediatrics, Temple University School of Medicine, Philadelphia, will give the annual William D. Haggard Memorial Lecture of Chi Chapter of Alpha Kappa Kappa at 8: 00 p. m., February 16, in the amphitheater of Vanderbilt University School of Medicine, Nashville. His subject will be "The Changing Aspects of the Practice of Pediatrics." Members of the profession are invited.

V 14
1951

GENERAL

Dr. Calderone to Direct U. N. Health Service.—Dr. Frank A. Calderone, Great Neck, N. Y., was appointed director of the Health Service of the United Nations, effective February 1. Dr. Calderone has been executive director of the New York City Cancer Committee for the past year. Previously he was director of the New York liaison Office of the World Health Organization. He was a consultant to the United States War Department during World War II.

Heart Association Fellowship Awards.—The American Heart Association announced, January 10, granting of research fellowship awards totaling $173,800 to 41 persons. In addition, it has awarded $17,400 to Western Reserve University, Cleveland, to continue a training school for cardiovascular investigators under the direction of Dr. Carl J. Wiggers. The fellowship awards are the first of this year's allocations from funds contributed by the public during the 1950 Heart Campaign last February. Because of possible interruptions of study by the mobilization program, the American Heart Association has stipulated that, if a fellow goes into nonpermanent military service, completion of the fellowship at the end of such military service will be encouraged, if circumstances permit. The amount of the research award or unexpended balance will be made available to the fellow at that time. The latest fellowship awards provide for the continuation of four established investigatorships, eight new established investigatorships, 13 research fellow renewals and 16 new research fellows. The research studies include the development of a mechanical heart-lung apparatus for cardiac surgery, development of an artificial kidney as a research and therapeutic tool, investigation into the causes and treatment of hardening of the arteries, high blood pressure, rheumatic fever, the relation of nutrition and drugs to circulatory disorders and the perfection of diagnostic equipment.

Annual General Practitioners Meeting.—The annual scientific assembly of the American Academy of General Practice will be held in the Civic Auditorium, San Francisco, March 19-22, under the presidency of Dr. Stanley Truman, Oakland, Calif. The program will hinge on two principal areas of interest: "Counseling Factors in Family Life" and "Functional or Psychosomatic Disorders in General Practice." The program is as follows:

Paul Popenoe, Sc.D., Los Angeles, Marriage and Family Relations.
William C. Menninger, Topeka, Kan., Sexual Aspects of Marriage.
Dorothy W. Baruch, Ph.D., Beverly Hills, Calif., New Ways of Discipline.
Panel, Counseling Factors in Family Life, George T. Harding, Los Angeles, moderator.
Russell R. de Alvarez, Seattle, Wash., Highlights of Prenatal and Postnatal Care.
Robert Wartenberg, San Francisco, Office Neurology.
Jesse L. Carr, San Francisco, Essential Laboratory Studies.
R. B. Robins, Camden, Ark., Medical Practice in a Changing World.
Walter C. Alvarez, Chicago, Care of the Dying.
Lot D. Howard Jr., San Francisco, The Injured Hand.
Clifford F. Gastineau, Rochester, Minn., Obesity and Thinness.
Richard H. Freyberg, New York, Common Rheumatic Disorders.
Charles F. McKhann, Cleveland, Ohio, Highlights of Pediatric Practice.
Richard A. Kern, Philadelphia, Our Geriatric Patients.
O. Spurgeon English, Philadelphia, Personality Growth and Development.
Stewart Wolf Jr., New York, Emotional Forces and Bodily Behavior.
George T. Harding, Los Angeles, Therapy in Functional Disorders.
Panel, Functional Disorders in Medical Practice, Walter C. Alvarez, Chicago, moderator.
Mims Gage, New Orleans, Essential Office Surgery.

The fee is $5 for nonmembers. Persons interested in the post-meeting Hawaiian tour of 18, 22 or 30 days should address the academy at 406 West 34th, Kansas City, Mo.

Influenza Virus Strains.—The Influenza Information Center at the National Institutes of Health, Bethesda, Md., reports that the strain study center in the laboratory of T. P. McGill, State University Medical Center, Brooklyn, has received the influenza virus from throat washings from three patients in London. This is reported to be A' virus. This laboratory has also received the A' virus isolated in Sweden earlier in the season and A' virus isolated in Leyden, Holland. These strains all appear to be similar in antigenic characteristics. Dr. Jonas E. Salk, University of Pittsburgh, reports the recovery of influenza virus isolated from a patient who was ill on Dec. 27, 1950. Antigens in influenza vaccine, especially the A' component, match the Pittsburgh strain. At present there is no indication of an outbreak of influenza in Pittsburgh. The division of preventive medicine, Office of the Surgeon General, Department of the Army, reports serologic diagnosis of type B influenza virus from a case in military personnel in Dayton, Ohio. The onset of illness was about January 5. The Department of Virus and Rickettsial Diseases of the Army Medical Service Graduate School has examined the Swe-3-50 influenza virus isolated in Sweden during June 1950 and the London 1-51 strain from the current English outbreak. Tests with human sera showed that both viruses belong to the general A type. Tests with strain-specific rooster antisera indicate that the Swedish and London viruses are similar though not identical to the 1950 Cuppett virus. Neither virus showed a significant reaction with PR8 (type A) or FM1 (type A') antiserum.

Resolutions by Farm Bureau and National Grange.—At its thirty-second annual convention in Dallas, Texas, Dec. 14, 1950, the American Farm Bureau Federation adopted a resolution on health which read in part:

> We will continue to cooperate with other groups in providing better voluntary medical care for rural people. We urge continued support of programs to deal with cancer, tuberculosis, venereal disease, polio, heart disease, and rheumatic fever; and also programs to aid crippled children. We endorse the American Red Cross National Blood Bank Program. We urge that the facilities of medical schools be expanded; and that existing facilities be utilized to the greatest extent possible to train more physicians, surgeons, dentists, nurses, technicians, and public health officers. We urge the full cooperation of rural people with our established health units and existing health programs. We favor putting greater emphasis on preventive medicine. In States where permissive legislation for the creation of public health units does not exist, State Farm Bureaus should seek the enactment of such legislation.
>
> We favor voluntary plans providing medical, health, dental, and hospital insurance. We urge a friendly attitude and fuller understanding on the part of the medical profession toward private prepaid medical insurance plans and the principles of their operation. Collection of maximum payments allowable under such plans, where in excess of customary charges, should be discouraged. We deplore practices of some in the medical profession who take unfavorable advantage of the existence of voluntary health protection plans, increase cost of service under them, and tend to defeat their successful operation. Such practices tend to stimulate a demand for compulsory health insurance or similar socialized medicine proposals. We oppose any form of compulsory health insurance.

At its eighty-fourth annual convention in Minneapolis, Nov. 24, 1950, the National Grange went on record as opposed to any form of compulsory health insurance and any system of socialized medicine. All granges were urged to consider and study at their meetings the proposed national health insurance act, and all possible amendments to medical health laws so that members may vote and otherwise exert their influence intelligently when opportunities arise. The National Grange also voted that all federal aid funds for use by any state should be determined by state or local officials without interference or control by federal agencies or officials.

Surgeons Sectional Meeting in Philadelphia.—A sectional meeting of the American College of Surgeons will be held in Philadelphia March 5-7 with headquarters at the Bellevue-Stratford. Attendance will be largely from Delaware, Maryland, New Jersey, New York and Pennsylvania, although there is no geographic restriction. Hospital conferences will be held on the first two days concurrently with the medical sessions, for discussion of such topics as "The Role of the Hospital in Civilian Defense," "Hospital Public Relations," "Teamwork in the Operating Room," "Adaptation of Hospital Service to Special Types of Patients—Chronic Cancer, Geriatrics and Psychiatric" and various aspects of hospital organization and relationships. The medical sessions will open at 8: 30 a. m. with the showing of medical motion pictures. On the first morning these will be followed at 10: 00 by a session in which the following subjects will be discussed; "Present Status of Therapy with Antibiotics," "Chest Injuries," "Fractures about the Ankle Joint" and "Anesthesia Problems in Poor Risk Patients." Panel discussions on the first afternoon will be on "Neck Surgery" and "Gastric Surgery." A talk on "Thomas Bond and the Pennsylvania Hospital" by Dr. John B. Flick of Philadelphia, and a discussion of "The Significance of Pennsylvania Hospital's 200th Anniversary" by John N. Hatfield, administrator of the hospital, will be given at the first evening

dinner meeting. At 8:30 there will be a symposium on cancer and a hospital conference. On the second morning there will be a symposium on trauma and in the early afternoon another symposium, on "Diagnosis of Acute Abdominal Conditions," for general practitioners and a panel discussion of "Emergencies Arising During Operation" for surgeons. A panel discussion of "Relation of Patient, Physician, Consultant and Hospital," with Dr. Paul R. Hawley as the moderator, will be given at 3:00 p. m. The hospital representatives will join with the physicians in the latter session, but their morning and early afternoon conferences will be separate. On the third day, operative clinics will be held for the visiting surgeons in the following hospitals: Abington Memorial, Abington; Hahnemann, Jefferson Medical College, Jewish, Lankenau, Pennsylvania and the Hospital of the University of Pennsylvania, Philadelphia.

CORRECTION

Tetraethyl Pyrophosphate in Myasthenia Gravis.—In the nineteenth line of the abstract on this subject in Medical Literature Abstracts in THE JOURNAL Jan. 20, 1951, page 185, the dose of atropine should have read 1/75 grain (0.8 mg.) instead of 1.75 Gm.

Cryotherapy.—In the answer to the query under this heading in THE JOURNAL of January 6, page 60, a minus sign should have appeared in front of the various temperatures of the materials mentioned. This correction applies only to the early part of the press run of that issue, as the error was detected and the minus sign inserted while THE JOURNAL was still on the press.

MEETINGS

ANNUAL CONGRESS ON INDUSTRIAL HEALTH, Atlanta Biltmore Hotel, Atlanta, Ga., Feb. 26-28. Dr. Carl M. Peterson, 535 N. Dearborn St., Chicago 10, Secretary.

ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE, Palmer House, Chicago, Feb. 12-13. Dr. Donald G. Anderson, 535 N. Dearborn St., Chicago 10, Secretary.

NATIONAL CONFERENCE ON RURAL HEALTH, Peabody Hotel, Memphis, Tenn., Feb. 23-24. Dr. F. S. Crockett, 535 N. Dearborn St., Chicago 10, Chairman.

AMERICAN ACADEMY OF FORENSIC SCIENCES, Drake Hotel, Chicago, March 1-3. Prof. Ralph F. Turner, Michigan State College Dept. of Police Administration, East Lansing, Mich., Secretary.

AMERICAN ACADEMY OF GENERAL PRACTICE, San Francisco, March 19-22. Mr. Mac F. Cahal, 406 W. 34th St., Kansas City 2, Mo., Executive Secretary.

AMERICAN ASSOCIATION OF ANATOMISTS, Detroit, March 21-23. Dr. Normand L. Hoerr, 2109 Adelbert Road, Cleveland 6, Secretary.

AMERICAN ASSOCIATION OF RAILWAY SURGEONS, Drake Hotel, Chicago, April 3-5. Dr. Chester C. Guy, 5800 Stony Island Ave., Chicago 37, Secretary.

AMERICAN COLLEGE OF ALLERGISTS, Edgewater Beach Hotel, Chicago, Feb. 11-14. Dr. Fred W. Wittich, 423 LaSalle Medical Bldg., Minneapolis 2, Secretary.

AMERICAN CONGRESS ON OBSTETRICS AND GYNECOLOGY, Hotel Netherlands Plaza, Cincinnati, March 31-April 4. Mr. Donald F. Richardson, 116 S. Michigan Ave., Chicago 3, Executive Secretary.

CENTRAL SURGICAL ASSOCIATION, Chicago, Feb. 22-24. Dr. James T. Priestley, Mayo Clinic, Rochester, Minn., Secretary.

CHICAGO MEDICAL SOCIETY ANNUAL CLINICAL CONFERENCE, Palmer House, Chicago, March 6-9. Dr. Walter C. Bornemeier, 30 N. Michigan Blvd., Chicago 2, Secretary.

CONFERENCE ON CHRONIC DISEASE—PREVENTIVE ASPECTS, Edgewater Beach Hotel, Chicago, March 12-14. Dr. Morton L. Levin, 535 N. Dearborn St., Chicago, Director.

MICHIGAN POSTGRADUATE CLINICAL INSTITUTE, Book-Cadillac Hotel, Detroit, March 14-16. Dr. L. Fernald Foster, 2020 Olds Tower, Lansing 8, Secretary.

MID-CONTINENT PSYCHIATRIC ASSOCIATION, Kansas City, Mo., March 31-April 1. Dr. Paul Hines, 2625 W. Paseo, Kansas City, Mo., Secretary.

MID-SOUTH POSTGRADUATE MEDICAL ASSEMBLY, Peabody Hotel, Memphis, Tenn., Feb. 13-16. Dr. Thurman Crawford, 899 Madison Ave., Memphis, Secretary.

NATIONAL SOCIETY FOR THE PREVENTION OF BLINDNESS, Hotel New Yorker, New York, March 28-30. Dr. Franklin M. Foote, 1790 Broadway, New York 19, Executive Director.

NEW ORLEANS GRADUATE MEDICAL ASSEMBLY, Municipal Auditorium, New Orleans, March 5-8. Dr. W. D. Beacham, 1430 Tulane Ave., New Orleans 12, Secretary.

SOUTHEASTERN SECTION, AMERICAN UROLOGICAL ASSOCIATION, Peabody Hotel, Memphis, Tenn., March 7-10. Dr. Russell B. Carson, Sweet Bldg., Fort Lauderdale, Fla., Secretary.

UNITED STATES-MEXICO BORDER PUBLIC HEALTH ASSOCIATION, Los Angeles, April 4-6. Dr. M. F. Haralson, 314 U. S. Court House, El Paso, Texas, Secretary.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* Various Centers. Feb. 13-15, April 16-17 (Part II only), June 18-20, Sept. 5-7. Ex. Sec., Mr. E. S. Elwood, 225 S. 15th Street, Philadelphia.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Written.* July 20. Given simultaneously in several cities in the United States. Final date for filing application was Jan. 20. *Oral.* Coronado, Calif., April 4-7 and Memphis, Oct. 14-17. Sec., Dr. Curtiss B. Hickcox, 80 Seymour St., Hartford 15, Conn.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written.* Various Centers, April 5. *Oral.* New York, June 8-10. Sec., Dr. George M. Lewis, 66 East 66th St., New York 21, N. Y.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written.* Various centers, Oct. 15. Final date for filing applications is May 1. *Oral.* The schedule of oral examinations for 1951 has been arranged on a regional basis as follows: New Orleans, March 15-17 includes candidates from the following states: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee and Texas. St. Louis, April 4-6 or 5-7, covering Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, South Dakota and Wisconsin. Philadelphia, June, covering Beirut, Canada, Canal Zone, Connecticut, Delaware, District of Columbia, Maryland, New Jersey, Ohio, Pennsylvania, Puerto Rico, Rhode Island, Virginia and West Virginia, New York, date to be announced, covering Maine, Massachusetts, New Hampshire, New York and Vermont. San Francisco, date to be announced, Arizona, California, Colorado, Idaho, Montana, New Mexico, Oregon, Utah and Washington.

The final date for the filing of applications for the New Orleans and St. Louis examination was Jan. 26. The closing date for the Philadelphia examination will be March 1. Dates of closing dates for the filing of applications for examinations in New York and San Francisco to be announced.

Oral examinations in the subspecialties will be held at the same time and place and on the same distribution.

Exec. Sec., Dr. William A. Werrell, 1 West Main Street, Madison 3.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* Chicago, May 1951. Sec., Dr. W. J. German, 789 Howard Ave., New Haven 4, Conn.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Oral.* New York City, May 10-16. Final date for filing application was Feb. 2. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6, Pa.

AMERICAN BOARD OF OPHTHALMOLOGY: *Oral.* San Francisco, March 11-15; New York, May 31-June 5; Chicago, October 8-13. Sec., Dr. Edwin B. Dunphy, 56 Ivie Road, Cape Cottage, Maine.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral.* Richmond, Va., May 1-5. Sec., Dr. Dean M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PATHOLOGY: *Written and Oral. Pathological Anatomy and Clinical Pathology.* Cleveland, April 23-24. Final date for filing application is March 15. Sec., Dr. Robert A. Moore, 1402 S. Grand Blvd., St. Louis.

AMERICAN BOARD OF PEDIATRICS: *Oral.* New Orleans, March 2-4; Cincinnati, March 30-April 1; Atlantic City, May 5-7. Ex. Sec., Dr. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION: *Parts I and II.* Philadelphia, June 16-17. Final date for filing application is March 31. Sec., Dr. Robert L. Bennett, 30 N. Michigan Ave., Chicago.

AMERICAN BOARD OF PLASTIC SURGERY: *Oral and Written.* Chicago, June 4-6. Final date for filing application is March 15. Sec., Dr. Bradford Cannon, 330 Dartmouth St., Boston.

AMERICAN BOARD OF PREVENTIVE MEDICINE AND PUBLIC HEALTH. Biloxi, Miss., April 24-25. Sec., Dr. Ernest L. Stebbins, 615 N. Wolfe St., Baltimore.

AMERICAN BOARD OF PROCTOLOGY: *Part I in Anorectal Surgery and Proctology.* Kansas City, Minneapolis, Philadelphia and San Francisco, May 12. Sec.-Gen., Dr. Louis A. Buie, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: Philadelphia, June 11-12. Final date for filing application is March 1. Sec., Dr. Francis J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF RADIOLOGY: *Oral.* Atlantic City, June 5-9. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written.* Various centers, March 1951. Final date for filing applications was Dec. 1, 1950. *Written.* Various centers, Oct. 1951. Final date for filing applications is July 1. Sec., Dr. J. Stewart Rodman, 225 South 15th Street, Philadelphia.

BOARD OF THORACIC SURGERY: *Written.* Various Centers, Feb. 16. Final date for filing application is Feb. 1. *Oral.* New York City, April 19. Sec., Dr. William M. Tuttle, 1151 Taylor Ave., Detroit.

AMERICAN BOARD OF UROLOGY: Chicago, Feb. 10-14, 1951. Final date for filing applications was Sept. 1, 1950. Chicago, Feb. 9-13, 1952. Final date for filing applications is Sept. 1. Sec., Dr. Harry Culver, 314 Corn Exchange Bldg., Minneapolis 15.

V 14
1951

DEATHS

Lippincott, Leon Stanley ⊕ Daytona Beach, Fla.; born in Augusta, Maine in 1888; Medical School of Maine, Portland, 1913; formerly on the faculty of his alma mater and Tufts College Medical School in Boston; specialist certified by the American Board of Pathology; formerly secretary of the Mississippi State Hospital Association; member of the American Association of Pathologists and Bacteriologists; fellow of the American Society of Clinical Pathologists, American College of Physicians and the American Public Health Association; founding fellow of the College of American Pathologists; served overseas during World War I; at one time affiliated with the Vicksburg (Miss.) Sanitarium and Eastern Maine General Hospital in Bangor; pathologist and director of the clinical laboratory of Halifax District Hospital; died November 25, aged 62, of phlebitis and pulmonary embolism.

Foster, Matthias Lanckton, New Rochelle, N. Y.; born in Chatham, N. Y., June 17, 1859; College of Physicians and Surgeons, medical department of Columbia College, New York, 1885; specialist certified by the American Board of Ophthalmology; fellow of the American College of Surgeons; served during World War I; for many years affiliated with New Rochelle Hospital; author of "Diagnosis from Ocular Symptoms"; on the editorial staff of the *New York Medical Journal* from 1887 to 1930 and *Archives of Ophthalmology* from 1898 to 1928; assistant editor, *Annals of Ophthalmology* from 1906 to 1913; collaborator, "Encyclopaedic Medical Dictionary" (1890) and "Practical Therapeutics" (1897); translator, "Roemer's Textbook of Ophthalmology (1913), "Adam's Ophthalmoscopic Diagnosis" (1913) and "Greef's External Diseases of the Eye" (1914); died December 4, aged 91.

Reye, Heinrich Albert ⊕ Detroit; born in Germany Nov. 26, 1886; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1913; professor of neuropsychiatry at Wayne University College of Medicine from 1918 to 1946, when he became professor emeritus; specialist certified by the American Board of Psychiatry and Neurology; member of the American Psychoanalytic Association and the American Psychiatric Association; fellow of the American College of Physicians; served during World War I; at one time associated with the U. S. Public Health Service; consulting neurologist to Children's, St. Mary's and Woman's hospitals; neurologist to the City of Detroit Receiving Hospital; died December 6, aged 64, of cerebral hemorrhage.

Randall, Herbert Elmer ⊕ Flint, Mich.; born in Birmingham, Mich., 1876; Detroit College of Medicine, 1897; member of the House of Delegates of the American Medical Association in 1914, 1915, 1916 and 1928; past president of the Michigan State Medical Society and Genesee County Medical Society; past president and secretary of the Northern Tri-State Medical Association; fellow of the American College of Surgeons; served in France during World War I; affiliated with the Michigan Home and Training School, Lapeer, St. Joseph's Hospital, Women's Hospital and Hurley Hospital, where he died November 18, aged 74, of arteriosclerotic heart disease and hypertension.

Clark, William Redwood Price ⊕ San Francisco; born in San Francisco April 11, 1869; Cooper Medical College, San Francisco, 1899; clinical professor of medicine (tuberculosis) emeritus, Stanford University School of Medicine; an Associate Fellow of the American Medical Association; member of the American Trudeau Society; served as a major in the U. S. Army during World War I; formerly member of the state department of health, director of tuberculosis for the city of San Francisco and the San Francisco Tuberculosis Association; at one time visiting physician at San Francisco City and County Hospital; died December 10, aged 81, of cerebral hemorrhage.

⊕ Indicates Fellow of the American Medical Association.

Pinkston, Omar Walker, Lieutenant Colonel, U. S. Army, retired, ⊕ Kansas City, Mo.; born July 26, 1875; Kansas City Medical College, 1898; Army Medical School, 1906; an Associate Fellow of the American Medical Association; entered the medical corps of the U. S. Army in 1906; served in the Philippines; made many trips to France as a transport surgeon in World War I and had charge of a base hospital at Brest, France; retired Dec. 7, 1919 for disability in line of duty; returned to active duty from March 1920 to April 1921; retired as a lieutenant colonel under a special act of Congress June 21, 1930; died November 29, aged 75.

Schramel, Anton John, Milwaukee; born in Milwaukee June 16, 1906; Marquette University School of Medicine, Milwaukee, 1933; interned at St. Mary's Hospital; from 1940 to 1946 served with the Army Medical Corps; discharged with the rank of major; won the silver star; joined the city health department as a school physician; named deputy health commissioner in 1946; four years later became district health officer for the Fond du Lac area; member of the American Medical Association and American Public Health Association; died suddenly in St. Joseph's Hospital, Mount Clemens, November 17, aged 44.

Bartran, William Henry, Green Bay, Wis.; Northwestern University Medical School, Chicago, 1899; fellow of the American College of Surgeons; member of the American Medical Association; past president of the Brown-Kewaunee-Door Counties Medical Society; on the staff of St. Vincent's Hospital; died November 20, aged 76, of coronary heart disease.

Bezlor, Benjamin Albert, Danville, Pa.; Atlantic Medical College, Baltimore, 1909; formerly practiced in Shamokin, where he was a member of the health board; died in Geisinger Memorial Hospital November 21, aged 71, of carcinoma of ampulla of vater with metastasis.

Blood, David Wilkie, Salt Lake City; Columbia University College of Physicians and Surgeons, New York, 1943; completed an internship and residency at Presbyterian Hospital in New York; certified by the National Board of Medical Examiners; specialist certified by the American Board of Internal Medicine; member of the American Medical Association; on the staff of the Dr. W. H. Groves Latter-Day Saints Hospital; died November 21, aged 31, of coronary occlusion.

Bridges, George Perry, Paragould, Ark.; University of Louisville (Ky.) Medical Department, 1914; member of the American Medical Association; past president of the Greene County Medical Society; died in Methodist Hospital November 22, aged 65, of heart disease.

Brown, Calvin Edgar ⊕ Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1906; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1907; died in the Norwegian American Hospital November 21, aged 71, of hypertension, arteriosclerosis, chronic nephritis and diabetes mellitus.

Burns, Harry Burnett, Pittsburgh; Bellevue Hospital Medical College, New York, 1895; for many years director of hygiene in the public schools of the city; died in Ligonier November 22, aged 79, of coronary occlusion.

Cain, Joseph D., Chicago; Central College of Physicians and Surgeons, Indianapolis, 1897; served on the staffs of St. Bernard's, Holy Cross and Little Company of Mary hospitals; died in Whitehall, Mich., December 9, aged 78, of pneumonia.

Candela, Domenico, Brooklyn; Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy, 1898; member of the American Medical Association; died November 21, aged 79, of arteriosclerosis and heart disease.

Carpenter, Eugene H., Oneida, N. Y.; College of Physicians and Surgeons, Baltimore, 1894; member of the American Medical Association; fellow of the American College of Surgeons; founder of hospitalization for city of Oneida; died November 21, aged 81, of chronic myocarditis.

Chalfant, William Paxson, Pitman, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1902; member of the American Medical Association; served during World War I; for many years county coroner; died in West Jersey Hospital, Camden, November 28, aged 70, of coronary occlusion.

Clark, Albert Henry, Reidsville, N. C.; Meharry Medical College, Nashville, Tenn., 1928; affiliated with Annie Penn Memorial Hospital, Reidsville, and the L. Richardson Memorial Hospital, Greensboro, where he died November 12, aged 51.

Clement, Lavinia Baily, Haddonfield, N. J.; Woman's Medical College of Pennsylvania, Philadelphia, 1894; member of the American Medical Association; died in Chester, Pa., November 27, aged 83, of cerebral hemorrhage.

Conrey, George Asbury, Chicago; Bennett Medical College, Chicago, 1912; served during World War I; died in Roseland Community Hospital November 29, aged 69, of chronic myocarditis and arteriosclerosis.

Diem, Oscar, North Tarrytown, N. Y.; Universität Zürich Medizinische Fakultät, Switzerland, 1902; formerly on the staff of Lenox Hill Hospital in New York; died November 30, aged 75, of heart disease.

Eaton, Lilley, Ely, Vt.; Dartmouth Medical School, Hanover, N. H., 1893; died in Enfield November 25, aged 79, of rheumatoid arthritis and lobar pneumonia.

Eversmeyer, Benjamin Ernst, Muscatine, Iowa; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; member of the American Medical Association; past president of the Muscatine County Medical Society; for many years health officer; served as president of the board, Benjamin Hershey Memorial Hospital; died November 27, aged 75, of arteriosclerotic heart disease.

Garneau, Benoit Wilfrid, Fall River, Mass.; Laval University Faculty of Medicine, Quebec, Canada, 1920; member of the American Medical Association; member of the board of health; on the staffs of Fall River General and St. Anne's hospitals; died November 27, aged 54, of myocardial infarction and bleeding duodenal ulcer.

Gill, Michael Henry Richard ✙ Hartford, Conn.; Yale University School of Medicine, New Haven, 1896; fellow of the American College of Surgeons; affiliated with St. Francis Hospital, where he died November 28, aged 78, of acute thrombophlebitis, arteriosclerosis and pulmonary infarction.

Haassler, August, Brooklyn; University of the City of New York Medical Department, New York, 1892; member of the American Medical Association; died in Jewish Hospital November 24, aged 83.

Hamilton, J. G., Clebit, Okla. (licensed in Oklahoma under the Act of 1908); died recently, aged 81.

Harp, John F., Prairie City, Iowa; State University of Iowa College of Medicine, Iowa City, 1884; member of the American Medical Association; died in Newton November 17, aged 92, of cerebral hemorrhage.

Harrison, Columbus William ✙ Boston; Tufts College Medical School, Boston, 1906; died recently, aged 71, of uremia.

Heath, Homer Harvey, Pacific Palisades, Calif.; born in Whitehouse, Ohio, Aug. 14, 1877; Western Reserve University Medical Department, Cleveland, 1903; member of the American Medical Association and the Ohio State Medical Association; specialist certified by the American Board of Surgery; fellow of the American College of Surgeons; formerly practiced in Toledo, Ohio, where he was affiliated with Riverside, Toledo and Mercy hospitals; died November 30, aged 73, of coronary thrombosis.

Hilger, David Daniel, St. Paul; University of Minnesota College of Medicine and Surgery, Minneapolis, 1905; member of the American Medical Association; died in St. Joseph's Hospital November 12, aged 73, of bronchopneumonia and coronary insufficiency.

Johnson, Asa Miller ✙ St. Paul; University of Minnesota College of Medicine and Surgery, Minneapolis, 1896; on the staffs of St. John's and St. Luke's hospitals; died November 19, aged 80, of cardiac infarction.

Johnson, Ernest Newton, Evansville, Ind.; Indiana University School of Medicine, Indianapolis, 1909; member of the American Medical Association; died November 23, aged 70.

Krevitt, Julius Maurice, Bakersfield, Calif.; University of Illinois College of Medicine, Chicago, 1934; member of the American Medical Association; affiliated with Mercy Hospital and Bakersfield Hospital, where he died November 22, aged 43, of coronary thrombosis.

Kuhlman, Luette Helen ✙ Toledo, Ohio; Ohio State University College of Medicine, Columbus, 1934; member of the American Society of Anesthesiologists; affiliated with Toledo Hospital, Mercy Hospital, Flower Hospital and St. Vincent's Hospital, where he died November 22, aged 52, of acute coronary thrombosis.

Kuhn, Robert, New York; Ludwig-Maximilians-Universität Medizinische Fakultät, Munich, Bavaria, Germany, 1919; died November 20, aged 69.

MacClure, Theodore Robert, Detroit; Detroit College of Medicine, 1901; died November 24, aged 81, of thrombosis of right ventricular artery and cerebral arteriosclerosis.

MacDonald, George Herbert ✙ Everett, Mass.; Tufts College Medical School, Boston, 1928; on the staffs of the Malden (Mass.) Hospital, Whidden Memorial Hospital and Melrose (Mass.) Hospital; died November 22, aged 46, of coronary occlusion.

Marcus, Kurt, Jersey City, N. J.; Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin, Prussia, 1926; member of the American Medical Association; died in New York November 28, aged 51, of coronary sclerosis.

Martyn, David T., ✙ Columbus, Neb.; John A. Creighton Medical College, Omaha, 1901; fellow of the American College of Surgeons; city health officer; affiliated with St. Mary and Lutheran hospitals; died in Creighton Memorial St. Joseph's Hospital, Omaha, November 24, aged 72, of heart disease.

Michaux, Stuart Neville ✙ Richmond, Va.; University College of Medicine, Richmond, 1903; emeritus professor of gynecology at the Medical College of Virginia; member of the South Atlantic Association of Obstetrics and Gynecology and the Southeastern Surgical Congress; fellow of the American College of Surgeons; past president of the Richmond Academy of Medicine; on the staff of Stuart Circle Hospital, where he died November 11, aged 72, of coronary thrombosis.

Miller, Louis Adrian ✙ Toledo, Ohio; University of Pennsylvania Department of Medicine, Philadelphia, 1894; past president of the Toledo Academy of Medicine; for many years on the staff of the Mercy Hospital; died November 29, aged 79.

Milliken, Walter S., Madison, Maine; Baltimore Medical College, 1897; member of the American Medical Association; for many years school physician; chairman of the board of health; served as representative to the state legislature for two terms; affiliated with Franklin County Memorial Hospital, Farmington, Central Maine General Hospital, Lewiston, and Redington Memorial Hospital, Skowhegan; died November 20, aged 80, of cardiovascular disease.

Morgan, Fred Bogardus, Clinton, Iowa; Chicago Homeopathic Medical College, 1898; member of the American Medical Association; died in Mercy Hospital November 28, aged 76.

Muttart, Alder Charles, Daytona Beach, Fla.; University of the City of New York Medical Department, 1887; died November 18, aged 86, of carcinoma of the stomach.

V 14
1951

Myres, Magnus Jacob ✙ Shreveport, La.; Columbia University College of Physicians and Surgeons, New York, 1904; served during World War II; at one time an officer in the Medical Corps of the Regular Army; affiliated with the Veterans Administration; died in the Veterans Administration Hospital, Phoenix, Ariz., November 30, aged 66, of renal failure.

Ohlbaum, Jacob ✙ Stamford, Conn.; Eclectic Medical College of the City of New York, 1904; Long Island College Hospital, Brooklyn, 1909; member of the Medical Society of the State of New York; died December 7, aged 68, of coronary thrombosis.

Peterson, James Jesse ✙ Mobile, Ala.; Medical Department of Tulane University of Louisiana, New Orleans, 1901; fellow of the American College of Surgeons; affiliated with Mobile Infirmary and Providence Hospital; died November 20, aged 74, of carcinoma of the tongue and carcinomatosis.

Portman, Raymond Joseph, San Diego, Calif.; University of Illinois College of Medicine, Chicago, 1928; died November 30, aged 52.

Prentiss, Harry G., Baltimore; University of Maryland School of Medicine, Baltimore, 1881; for many years medical examiner for the Metropolitan Life Insurance Company; died November 24, aged 92.

Radabaugh, Rudolph Charles ✙ Hastings, Minn.; University of Illinois College of Medicine, Chicago, 1917; fellow of the American College of Surgeons; served during World War I; consulting surgeon, Hastings State Hospital; affiliated with St. John's Hospital in St. Paul and Mounds Park Hospital, St. Paul, where he died November 24, aged 60, of cerebral thrombosis.

Ramsay, Clinton Hall, Laurel, Miss.; Atlanta College of Physicians and Surgeons, 1902; member of the American Medical Association; affiliated with Laurel General Hospital; served as chief surgeon for the Gulf, Mobile and Northern Railroad; died December 4, aged 75, of congestive heart failure.

Randles, Herbert ✙ Fort Scott, Kan.; College of Physicians and Surgeons, Medical Department of the Kansas City University, Kansas City, 1900; Jefferson Medical College of Philadelphia, 1907; on the staff of Mercy Hospital; died November 24, aged 81, of coronary thrombosis.

Reiley, William Smith ✙ Red Oak, Iowa; Omaha Medical College, 1895; served as mayor of Red Oak and as chairman of the board of health; died November 8, aged 79, of metastatic carcinoma.

Rhyne, Arthur Wellington, Coahoma, Miss.; Memphis (Tenn.) Hospital Medical College, 1905; member of the American Medical Association; served overseas during World War I; died in Baptist Hospital November 4, aged 72, of bleeding peptic ulcer and uremia.

Richardson, Samuel M. Sr., Minden, La.; Louisville (Ky) Medical College, 1906; member of the American Medical Association; for many years county coroner; affiliated with Minden Sanitarium; died recently, aged 72, of cirrhosis of the liver.

Richardson, Wallace Robert, Little Rock, Ark.; Vanderbilt University School of Medicine, Nashville, Tenn., 1921; instructor in the department of surgery and surgical specialties at the University of Arkansas School of Medicine; vice president and medical director of the National Equity Life Insurance Company; on the staffs of St. Vincent's Hospital and the Arkansas Baptist Hospital, where he died November 15, aged 57, of bronchiectasis and emphysema.

Riess, Stephen, Cedar Rapids, Iowa; Universität Leipzig Medizinische Fakultät, Saxony, Germany, 1913; member of the American Medical Association; died recently, aged 65, of coronary occlusion.

Roberts, Herbert Alfred, Derby, Conn.; New York Homeopathic Medical College and Hospital, New York, 1896; president of the Connecticut Homeopathic Medical Examining Board; died recently, aged 82.

Royal, Warren McCrimmon, Cincinnati; University of Louisville (Ky.) Medical Department, 1912; served during World Wars I and II; for many years affiliated with the Veterans Administration; retired chief of rehabilitation services for the Cincinnati Regional Office of the Veterans Administration; died in the Veterans Administration Hospital in Fort Thomas, Ky., November 11, aged 65, of pulmonary emphysema and cor pulmonale.

Saliba, John, Savannah, Ga.; University of Edinburgh Faculty of Medicine, Scotland, 1893; died November 16, aged 81.

Sanford, Mark D., Sadieville, Ky.; Kentucky School of Medicine, Louisville, 1893; member of the county board of health; died in the John Graves Ford Memorial Hospital, Georgetown, November 19, aged 81, of arteriosclerotic cardiovascular disease.

Savitz, Samuel A., Philadelphia; Medico-Chirurgical College of Philadelphia, 1905; assistant medical director of the U. S. Coast and Geodetic Survey in Alaska in 1909 and 1910; member of the American Medical Association; formerly on the faculty of Temple University School of Medicine; specialist certified by the American Board of Internal Medicine; served on the staffs of Mount Sinai, Temple University, Jefferson and Philadelphia General hospitals; died suddenly November 30, aged 66, of coronary insufficiency.

Shouse, Charles, Mesa, Ariz.; University Medical College of Kansas City, Mo., 1897; died November 6, aged 77, of acute dilatation of the heart.

Stewart, John J., Westminster, Md.; Jefferson Medical College of Philadelphia, 1882; member of the American Medical Association; president of the Union Mills Savings Bank; died November 7, aged 88, of cerebral hemorrhage.

Stober, George Washington ✙ Cleveland; Ohio State University College of Homeopathic Medicine, Columbus, 1918; member of the National Gastroenterological Association; for many years health director of East Cleveland, where he served as physician for the schools; died in the University Hospitals November 2, aged 56, of carcinomatosis.

Walker, Nicholas Stubbs, Dyersburg, Tenn.; Medical Department of Tulane University of Louisiana, New Orleans, 1890; past president of the Tri-State Medical Association; once president of the Mid-South Post-Graduate Assembly; served as surgeon for the Illinois Central Railroad; affiliated with the Baird-Brewer General Hospital, where he died October 21, aged 83, of heart disease.

Walker, Stanley Ross ✙ Chebanse, Ill.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1889; past president of the Kankakee County Medical Society; for many years mayor of Chebanse and served as chairman on the school board; on the staff of St. Mary's Hospital in Kankakee, where he died December 2, aged 87, of arteriosclerosis and cardiac failure following an operation.

Walsh, Frank Alexander, Readsboro, Vt.; University of Vermont College of Medicine, Burlington, 1914; member of the American Medical Association; died in North Adams (Mass.) Hospital December 3, aged 61, of coronary thrombosis.

Walsh, John Edward, Revere, Mass.; Baltimore Medical College, 1898; member of the American Medical Association; served as mayor and city physician; died November 8, aged 77, of heart disease.

Williams, William Claiborne, Bridgeport, Ala.; Medical College of Alabama, Mobile, 1900; member of the American Medical Association; died in Murfreesboro, Tenn., November 8, aged 74, of coronary thrombosis.

Wootters, John Smith ✙ Crockett, Texas; Medical Department of Tulane University of Louisiana, New Orleans, 1891; Jefferson Medical College of Philadelphia, 1892; city councilman from 1939 to 1947; one of the founders of the Jim Smith Memorial Hospital; died in the Memorial Hospital, Houston, October 23, aged 80, of carcinoma of the maxilla.

GOVERNMENT SERVICES

ARMY

Civilian Medical Consultants.—Three civilian physicians have accepted appointments to committees of the Society of U. S. Medical Consultants in World War II, which will assist in providing medical consultation of the highest order to the Army Medical Service. The committees were appointed at a meeting of the society's advisory board in the office of the Surgeon General. Heading the committee which will concentrate on advising on assignment of consultants for Army hospitals in the United States is Dr. Joseph M. Hayman Jr., specialist in internal medicine, Cleveland. The overseas committee chairman is Dr. Alfred R. Shands, orthopedic surgeon, Wilmington, Del. Dr. John B. Flick, Philadelphia, will fill the general surgery position on the overseas committee. Still to be named are a neuropsychiatrist and a general surgeon for the Zone of Interior committee, and an internist and a neuropsychiatrist for the overseas committee. The aim of the Zone of Interior committee will be to assure that every Army hospital in the United States has available within a reasonable distance consultant skills that can be called on as needed. Under the overseas program, outstanding American physicians are sent abroad to visit the European and Far East commands and the Panama Canal Zone as representatives of the Surgeon General.

Cataloguing Research Scientists.—The Surgeon General's Office is cataloguing every applicant commissioned in the Medical Corps for the purpose of finding those who have training or experience in research. The Surgeon General is interested in knowing just what medical talent is available for research in clinical and investigative work; this takes in the related fields of bacteriology, chemistry and physiology.

The Medical Research and Development Board of the Army Surgeon General's Office has prepared a questionnaire, which is given to selected persons after they have reported to duty at the Medical Field Service School, Fort Sam Houston, Texas, where definite assignments are made. Persons with particular qualifications in research for which the Army has definite need are being placed in research assignments. The questionnaires of those for whom there is no immediate assignment are held by the Research and Development Board for future openings.

Need for Women Specialists.—To meet the Army's anticipated expansion, the Army Medical Service hopes to recruit 572 volunteer women medical specialists by June 30, the Department of the Army announces. This is more than double the anticipated need announced last November. The 572 volunteers needed by June 30 include 247 dietitians, 179 physical therapists and 146 occupational therapists.

NAVY

Basic Course for New Navy Doctors.—Newly commissioned medical officers of the Navy now receive a 24 week basic course in naval medicine. The course convened Jan. 15, 1951, at the Naval Medical School, Bethesda, Md., with 31 student medical officers enrolled. One of the chief functions of the Naval Medical School throughout the years has been the instruction and indoctrination of medical officers in basic concepts of naval medicine. The classes have varied from six weeks to nine months, depending on the exigencies of the service. The current basic course is a departure from any previous course for newly commissioned officers, in that a great portion of the time will be spent on field and sea duty away from the school. The medical officer attending the basic course will learn his duties not only in the classroom but by experience aboard ships of the active fleet, through duty with the marines in the field and by visits to, and instruction in, aviation, submarine and amphibious base operations.

Medical Casualties in Korea.—Complete figures as of January 18 showed a total of 263 enlisted medical corpsmen as casualties during service in support of marines fighting in Korea. Of these, 37 have been killed and 10 are missing in action. Three medical corps officers have been wounded and one killed. All medical care for the Marine Corps is provided by the Navy.

Monthly Meeting.—Dr. George W. Thorn, physician in chief, Peter Bent Brigham Hospital, Boston, was the guest lecturer at the Naval Medical School, Bethesda, Md., January 26. Dr. Thorn spoke on "Cortisone and ACTH—Their Current Application to Medical Problems."

AIR FORCE

Aviation Medical Examiners.—A class of more than 50 officers graduated from the aviation medical examiner course at the Air Force School of Aviation Medicine in Texas January 27. The graduation address was delivered by Dr. Chauncey D. Leake, dean of the University of Texas Medical School at Galveston. There were two members from Egypt in the class.

By completing the six week specialized course the graduates qualified for duty with Air Force units, where their primary mission will be to conduct physical examinations for flying. Because of the recent shortening of this course from 11 to six weeks, however, the officers will not obtain their aviation medical examiner ratings until they successfully complete a three month preceptorship under supervision of a qualified aviation medical examiner, flight surgeon or medical aircraft observer. During this period, which was set up to minimize the curtailment of formal instruction, each will be required to log 25 hours' flying time in military aircraft and satisfactorily accomplish 50 physical examinations for flying. All members, as a prerequisite to entering the school, hold M.D. degrees.

General Benson Receives Award.—Brig. Gen. Otis O. Benson Jr., commandant of the Air Force School of Aviation Medicine, Randolph Field, Texas, has received the John Jeffries Award for 1950 from the Institute of the Aeronautical Sciences. The award, which includes an honorarium and a certificate, was presented to General Benson at the organization's Honors Night banquet in New York, January 29. He was cited for his contributions toward perfection of the anti-G suit, the diluter-demand oxygen system used in high altitude bombing and studies leading to the establishment of standards for night vision in the Air Force, as well as the physiological training program that is still active in giving altitude and G-force indoctrination to all air crew personnel.

The John Jeffries Award is made annually by the Institute of the Aeronautical Sciences honoring the memory of Dr. John Jeffries, an American physician who, with the French balloonist Blanchard, made the first aerial voyage across the English Channel in 1785. On a previous voyage Dr. Jeffries made the earliest recorded scientific observation from the air.

PUBLIC HEALTH SERVICE

Examination for Chemist and Biochemist.—Competitive examinations for appointment of officers to the positions of chemist and biochemist in the regular corps of the Public Health Service will be held April 16-18, 1951, at a number of points throughout the United States. Applications must be received no later than March 19, 1951. Appointments will be made in the grades of assistant scientist and assistant sanitarian (equivalent to Navy rank of lieutenant, j.g.) and senior assistant scientist and senior assistant sanitarian (equivalent to lieutenant). Appointments are permanent and provide opportunities for

V 14
1951

qualified chemists and biochemists to pursue their professions in research and public health activities as life careers in the service. All applicants must be United States citizens and at least 21 years of age. Gross pay is identical to that of officers of equivalent rank in the Army and Navy. Entrance pay for the assistant grade with dependents is $4,486.56 per annum; for senior assistant with dependents, $5,346. These figures include subsistence and rental allowance. Application forms may be obtained from the Surgeon General, Public Health Service, Federal Security Agency, Washington 25, D. C., Attention: Division of Commissioned Officers, Desk "A."

Committee on Aging.—Mr. Clark Tibbitts has been appointed chairman of the Committee on Aging and Geriatrics of the Public Health Service. The committee, working with private organizations and government agencies, has three major purposes: (1) to develop methods for integration of older persons into our total mobilization effort, (2) to collect information about the characteristics and potentialities of older persons, about the problems experienced by them and their families and (3) to satisfy the demands for guidance to public and private organizations interested in fitting older persons into active participation in normal family, social and community activities.

The Federal Security Administrator said that the present emergency calls for every short cut that can be devised to bring into the service of the country the skills and the wisdom of those who have been pushed out. This calls for their reemployment whenever possible and immediate action in vocational training and rehabilitation and in health measures that will bring other older workers back into employment. Since the war there has been significant change, perhaps a reversal, in the concept of aging and old age. What began as a program of human and social welfare to meet the change in the age distribution of the population must now be translated into one of national necessity. Millions of such persons can hold jobs or be useful in civil defense work.

Mr. Tibbitts' appointment culminates two decades of work on the sociologic and educational aspects of the aging process. He is chairman of the Committee on Education for Aging of the National Education Association and was director of the Institute for Human Adjustment of the University of Michigan from 1938 to 1949.

Millions for Cortisone and ACTH Research.—Of the $2,300,000 allocated this fiscal year by Congress to the Public Health Service for research with pituitary adrenocorticotropic hormone (ACTH) and cortisone, more than $2,000,000 has been reallocated to nonfederal research institutions. The Public Health Service has made 129 grants to institutions in 17 states on recommendations of the National Advisory Health, Heart, Cancer and Mental Health Councils and with the approval of the Surgeon General of the Public Health Service.

In terms of clinical treatment, the grants represented a vast screening program for testing of cortisone and ACTH in a number of diseases which have had poor prognoses. This testing falls into two general categories: (1) appraisal of ACTH-cortisone therapy in diseases such as leukemia and the lymphomas and in others in which only preliminary results have thus far been obtained and (2) attempts to consolidate gains in the treatment of diseases such as rheumatoid arthritis, rheumatic fever, asthma, lupus erythematosus, uveitis and ulcerative colitis, in which steroid therapy has already shown great promise. Typical of the large number of grants for combined clinical-basic research is that for the rheumatic fever program, for which about $500,000 has been allocated.

Civilians Appointed to Medical Policy Council.—Three civilian professional men have been appointed to the recently established Armed Forces Medical Policy Council, the Department of Defense has announced. The new council members, sworn in at ceremonies in the Pentagon, are Drs. I. S. Ravdin, Philadelphia; W. Randolph Lovelace II, Albuquerque, N. Mex., and James P. Hollers, San Antonio, Texas. Their appointments complete the membership of the seven man council. Appointment of the other members—Dr. Richard L. Meiling, chairman, and the Surgeons General of the Army, Navy and Air Force—was announced Jan. 5, 1951.

Intensified Research on Blood and Its Fractions.—An intensified research program to develop more effective means for collecting, preserving and using blood and its fractions has been launched by the government and a number of medical schools and other nonfederal institutions. On agreement among the several agencies concerned, the National Institutes of Health has initiated the research and development phase of the program. The organizations concerned include the American National Red Cross, the National Research Council, the Federal Civil Defense Administration, the Department of Agriculture, the Department of Defense, the National Bureau of Standards and various independent blood banks and state agencies.

To spearhead this research program, which will be administered by the National Heart Institute, $600,000 has been allocated as part of the National Blood Program's first year requirement. It is estimated that funds from all sources to be spent during the first year will total $2,000,000. In addition to research in nonfederal institutions, work will be done at the National Institutes of Health, Naval Medical Research Institute and in Army hospitals. To aid in the developmental aspects, a special committee of federal and nonfederal scientists has been established. The Committee for Research and Development, headed by Dr. Charles A. Doan of Ohio State University, has been allocated $215,765 of the currently available funds for use in the field of developmental research. This sum will be used to adapt results of test tube research to large scale production of blood fractions.

Courses in Radiologic Health Training.—Short courses in radiologic health training and radiologic instrumentation are being given early this year by the Public Health Service at its Environmental Health Center in Cincinnati. The courses are designed primarily for health officers, sanitary engineers and other health workers in state and local health departments. Allied groups of health personnel, such as waterworks operators, are eligible to attend the courses. Health department personnel should make application through the state health offices, and other organizations should apply through the division head of the organization concerned. The next course in basic radiologic health training will be held February 26-March 9. The course will emphasize radiation production, the effects of radiation on tissue, radiation absorption and the role of radiation in public health programs. It will not cover detailed patient care in the treatment of radiation sickness, shock or burns.

A basic course in radiologic instrumentation will be given April 2-20 and will be repeated May 6-25 and June 3-22. The course will provide instruction in the theory of and principles underlying radiation detection instruments and will include laboratory and field instruction in the use and maintenance of radiation measurement instruments.

Information about the classes may be obtained from the regional Public Health Service Office or from Dr. Simon Kinsman, chief, Radiological Health Training Activities, Environmental Health Center, 1014 Broadway, Cincinnati 2.

$58,300 for a Conference in June.—The Public Health Service announces that a grant of $58,300 from the National Institute of Mental Health is being used to hold a conference on undergraduate psychiatric education under the auspices of the American Psychiatric Association, with the Association of American Medical Colleges, at Cornell University this coming June. Five major areas are outlined: (1) Community needs—rural and urban; (2) the student—his adaptation and progression; (3) the setting—the medical school as it exists today, biases, deficiencies and potentialities; (4) general principles, content and methods of teaching psychiatry at the undergraduate medical level, and (5) administrative and integrative patterns of organization. Seventy delegates, mostly professors of psychiatry and medical school deans, plus representatives from other interested professional groups and allied agencies will attend. Dr. Daniel Blain, American Psychiatric Association medical director, will serve as executive director of the conference. Each of the five major study areas will be assigned to a preparatory commission, consisting of a chairman and six other members.

FOREIGN LETTERS

LONDON

Ministry of Health Circular R.H.B.15(106).—Following is a summary of the circular regarding the displacement of registrars published in November 1950.

REVIEW OF APPOINTMENTS

1. As the regional hospital boards will be aware, the Minister has had under review the numbers of appointments at present held in the hospital service in the grades of senior registrar and registrar. It has been made clear from the outset that these grades are regarded as training for potential consultants. It follows that the number of appointments should be closely related to the estimated number of annual vacancies, and it is not justifiable in the interests of the individual (that is, the registrar) to multiply the training posts regardless of vacancies for trained men.

2. It has also been indicated that training should be continued only for those practitioners who appear likely to benefit from it and that promotion from one grade to another should be competitive. The conception is one of a training ladder, up which the trainee proceeds as far as his abilities permit and which at any time a practitioner may have to leave if he appears unlikely to benefit from further training. The registrar should be reviewed at the end of the first year; if he is considered satisfactory, he should proceed to a second year in that grade. At the end of the third year a senior registrar training should be complete, and appointment for a fourth year should be exceptional and for the most part confined to certain specialties (thoracic surgery, neurosurgery, plastic surgery), if there are special circumstances justifying a further year of training or if persons who have completed training (for example, general physicians or general surgeons) wish to proceed into a further specialty (psychiatry, ophthalmology, otorhinolaryngology), provided there are special circumstances in which it is thought desirable to facilitate such training.

150 APPOINTMENTS ANNUALLY

3. Against the above background it is necessary to consider what should be the present numbers of senior registrars and registrars in the service and to fix the training establishment from time to time. Available information indicates that the number of appointments available to senior registrars who complete their training at hospitals in England and Wales is unlikely to exceed 150 annually. This includes not only consultant and senior hospital medical or dental officer appointments necessary to offset wastage through death or retirement but also a proportion of additional posts and openings in other services and overseas and in hospitals in this country.

On this basis it appears that the number of training posts in England and Wales should not at present exceed 600 for senior registrars and 1,100 for registrars. The figure for registrars is a total of those in first and second year training, and that for senior registrars is a total of those in first, second and third year training. The figures assume a wastage at the end of each year.

4. The present numbers in England and Wales considerably exceed the above, being more than 1,400 in each grade. It is therefore essential to take steps to bring the number of training posts as quickly as possible into line with the numbers required.

5. This indicates how these steps should be taken.

FIXING ESTABLISHMENTS

6. In the determination of which posts should exist and in which hospitals, it is desirable that the position at both teaching and nonteaching hospitals should be looked at as a whole within each regional area. The regional board and the board or boards of governors in each regional areas are therefore requested to consider urgently together what trainee posts should be provided in the area within the maximums indicated below and to submit their joint proposals to the Minister not later than Jan. 1, 1951.

In the preparation of these proposals the cooperation of the dean or director of postgraduate medical studies of the university for the area should be sought, and they should indicate the number of senior registrar and registrar posts it is proposed should be provided in each specialty. The Minister will review these proposals and will approve them with or without modification accordingly.

7. When such factors as population, the number of consultants, the available training facilities and the number of beds in the different regions are taken into account, it would appear that the maximum number of posts for each regional area (including teaching hospitals in the area) should be as indicated in the table.

Maximum Posts for Regional Areas

	Senior Registrar (Total for 1st, 2d and 3d Yr.)	Registrar (Total for 1st and 2d Yr.)
Newcastle	34	63
Leeds	36	65
Sheffield	42	76
East Anglia	18	32
N. W. Metropolitan	75	138
N. E. Metropolitan	48	86
S. E. Metropolitan	52	96
S. W. Metropolitan	83	151
Oxford	22	42
Southwestern	30	56
Wales	28	51
Birmingham	52	96
Manchester	52	96
Liverpool	28	52

The distribution among specialists will, of course, need to vary slightly from region to region, according to the training facilities available in the various specialties in each region. The concentration of teaching resources in London in both undergraduate and postgraduate teaching hospitals will naturally have to be taken into account in the determination of the final regional distribution.

8. In addition to fixing total establishments, an approximate distribution in each region of the total into numbers for each year of training must obviously be made, though this distribution may vary a little at different times. In addition to the information asked for in section 6, the regional proposals should therefore also include a statement of the number of registrars and senior registrars by specialty in each year of training it is proposed to recruit in the region during the coming year.

9. When the establishment proposals have been approved by the Minister—which will be as soon as possible after Jan. 1, 1951—it will be the task of the boards to apply them to existing numbers and new recruits. The approved figures should be strictly adhered to from the date of approval onward, which means from that date (1) the number of first year

The items in these letters are contributed by regular correspondents in the various foreign countries.

V 14
1951

registrars or senior registrars recruited during the year should be the number (within the approved total) which boards have decided is appropriate for the time being and (2) as the existing registrars and senior registrars reach the end of their personal year of appointment, second year registrars and third year senior registrars should have their appointments terminated (unless in the exceptional cases mentioned at the end of section 2); and first year registrars and first and second year registrars should be reviewed and reappointed for a further year's training only so far as that is possible within the approved total establishment figures for the region.

10. In advance on any approval of establishment it is desirable that all possible steps should be taken to begin the reduction in the numbers of present trainees. Accordingly, from now on boards should not renew the appointment of any second year registrar whose personal year of appointment ends or any third or subsequent year senior registrar save in the exceptional cases mentioned at the end of section 2 and subject to what is said in section 11(*a*) as to possible temporary interim arrangements if an alternative appointment is required. In renewing other appointments or recruiting first year registrars or senior registrars, they should have regard for the necessity for reducing numbers and the probable maximums that will be approved.

ALTERNATIVE APPOINTMENTS

It is appreciated that in some circumstances a reduction in the number of persons employed in training in hospitals may necessitate the appointment of other practitioners as assistants in their place. We are more than satisfied that the work of the hospital necessitates an alternative appointment in the place of a senior registrar, but otherwise the following are among the steps which may be taken:

(*a*) An existing senior registrar whose appointment is not renewed for a further year as a trainee may be offered an appointment for one year only as a temporary senior registrar at his present salary rate. This is intended as a strictly interim arrangement with the double purpose of assisting boards to overcome temporary staffing problems and of giving the individual practitioners concerned a longer opportunity of seeking other work.

(*b*) Alternatively, boards may appoint a suitably experienced family doctor (normally one with a higher qualification and with the experience of a senior registrar or registrar) on a part time basis to act as a clinical assistant. This is intended as a long term method of meeting staffing difficulties in the senior registrar field, and has the advantage of providing a valuable link between the general practitioner and hospital services. In making appointments of this kind, the boards must satisfy themselves not only that the practitioner has the experience and qualifications required but also that his commitments in general practice would not prevent his devoting the time needed to carry out the duties of the hospital post. The remuneration of part time general practitioners appointed as clinical assistants will be announced later.

12. Where it is necessary to terminate the appointment of an existing registrar or senior registrar, the board will no doubt wish, when thanking him for his services, to draw his attention to other possible openings. In addition to the various fields of civilian medical practice in this country, both inside and outside the National Health Service, some of these practitioners may be needed in openings abroad or in His Majesty's forces. A note about these is appended, which should be drawn to the notice of each person concerned.

JUNIOR REGISTRARS

13. As mentioned in section 2 the grade of junior registrar is not regarded as a training grade like that of registrar, and the present title is misleading. In future, therefore, the grade should be called senior house officer, the definition, remuneration and the like remaining unchanged. It is, of course, not proposed that the establishment in hospitals of the grade now to be known as the senior house officer should be increased on account of the change of nomenclature. Nor does the change affect the method of recruiting registrars, who will still be persons with normally at least two years' hospital practice since registration.

OTHER OPENINGS

There is an urgent need for specialists in His Majesty's forces. There are at present about 400 vacancies for such officers in the navy, army and air force. They are particularly required in anesthetics, surgery, otology, radiology, psychiatry, pathology, dermatology and venereology. In addition, there are over 100 vacancies for general duty officers. An appended list of the addresses of the service departments concerned was given. About 200 posts on a permanent or temporary basis are available in many parts of the Colonial Empire. Those interested can obtain further information from the Director of Recruitment, Colonial Service. A number of university and hospital appointments are vacant or will shortly be vacant principally in the Middle East and Southeast Asia. Those interested can obtain further information in the first instance from the Technical and Scientific Register, York House, Kingsway, London, W.C.2.

MEDICAL JOURNAL'S SEVERE CENSURE

The chief leading article of the *British Medical Journal* of Nov. 18, 1950 comments severely on the government directive to displace registrars:

In a state-sponsored medical service the political party in power will always be tempted to promise more than it can perform. The Minister and his deputies promised a big expansion in the consultant and specialist services, and in an early debate a 50% increase was suggested. Only four weeks ago Lord Haden-Guest, a surgeon, had stated in House of Lords that there were not enough doctors to do the necessary work, and in the same debate Lord Moran, a physician, said that the consultants only numbered 56% of those the Minister considered necessary. The circular on registrars comes as a shock and a severe disappointment to the many young men and women who have been rash enough to take the Government at it word. The Ministry estimates that there are now approximately 2,800 senior registrars and registrars and that the number for whom training posts can be found is only 1,700, thus the Ministry in effect suggests that 1,100 registrars are to be put into the discard. This is a harsh decision and one that reflects discredit on all those who have allowed this state of affairs to come about. In order to beguile the public and the medical profession the Government between 1945 and 1948 held out promises it must have known it could not fulfil. An attractively easy path was made for the would-be consultant compared with the old days and the hard way trodden by his predecessor. There was a large removal of the financial difficulties by the proposals made in the Spens report and ahead lay an extended hospital service in which every patient could receive at any moment the expert medical and surgical assistance the Government promised him.

Added to this there were the discouraging features in the proposed family doctor services. A young man thinking himself capable of making the grade looked upon the career of a specialist as at least one way of avoiding the rough and tumble of a general practitioner's life. There was an accumulation of medical men and women who wanted to be consultants, which had resulted from the war. This factor alone increased the number who sooner or later had to receive a setback to their expectations. The medical profession itself was partly to blame as it did not caution the would-be consultant against hoping for too much. It could have done this by making more stringent the conditions for taking higher qualifications.

In the two and a half years of the existence of the National Health Service, there has been no statement from the Ministry as to what are to be the establishments of hospitals in this country. An added difficulty is the assessment of the accuracy of the Ministry's estimate of the number of registrars required. If we accept a figure of between 5,000 and 6,000 as representing the number of consultants and specialists in the country, and the Government's own rough estimate of a 50% increase in this number the present total of 2,800 registrars would seem to be feasible. An obvious limit to the number of registrars must be the number of posts available for them, and this number cannot be increased unless there is an extension of existing hospitals and the building of new ones, and sufficient suitable and competent men and women to man these new posts. This is surely so obvious that the Ministry of Health cannot fail to have been aware of it, and therefore aware of the grave injustice being done to those who have been allowed to train as registrars and are now told (1,100 of them) that they are not wanted. Or at least not wanted in the National Health Service, because the brief little note at the end of the Ministry's Circular headed "Other Openings" gives information to the effect that there are about 700 vacancies in His Majesty's forces and in the Colonial Medical Service. In the former the terms and conditions of service are inferior to those of the National Health Service.

The Joint Consultant's Committee have had discussions with the Ministry and pointed out the need for more consultants. Everyone is agreed on this and yet the Ministry, apparently acting on instructions from the Treasury, refuses to do this; refuses in other words to fulfil the promises made by the Government to the people of this country.

The article draws attention to the curious paragraph (which they say deserves the closest scrutiny by both registrars and family doctors) where there is laid down what the Ministry describes as a long term method of meeting staffing problems in the senior registrar field. This paragraph in the circular begins by noting that a reduction in the number of persons in training in hospitals may necessitate the appointment of other practitioners to work in their place. This means that the Ministry may appoint family doctors to work on a part time basis as "clinical assistants" and receive remuneration for this. Such practitioners will normally be expected to have high qualifications and experience as registrars. It would be some time before the full implications of this paragraph would become manifest. It might, of course, be argued that this would be one way in which the Ministry could increase the reward of the family doctors and one way, also, in which the family doctor could expect to enter the ranks of the consultant. But can this view be expected to appeal to the 1,100 registrars who have been encouraged to believe that they will have the chance of becoming consultants and specialists? Will the proposal appeal to those who rightly insist that the family doctor must find his proper place in the hospital life of this country? The Ministry has no doubt been instructed by the Treasury to discover every possible way for cutting down the cost of the health service. The present proposal looks like a most disingenuous method of securing the registrar type of service at cut rates; the dispossessed registrars being politely invited to work in the armed forces under conditions which the government refuses to make attractive.

If during the two and a half years of its existence the National Health Service has not broken down, it is principally because the medical profession has gone on doing its job in spite of all the irritations and frustrations that come from the fact that such a gigantic scheme, introduced at once instead of by stages, could not possibly be operated efficiently. . . . The medical profession is prepared to go on doing its job, but if it is to be treated in this summary fashion and if the Ministry breaks faith with the profession then it will have to insist upon a different kind of service in which it can work in harmony.

DEBATE IN PARLIAMENT

In *Hansard* (the daily official verbatim report of proceedings in Parliament) of Nov. 22, 1950, a speech appears by Dr. Charles Hill, member for Luton and ex-secretary of the British Medical Association on the subject of the displaced registrars. Dr. Hill said that the subject of the provision of consultant and specialist services for the people of this country was an important topic. He brought out the following facts:

Composition of Hospital Personnel.—The hospital and consultant services in this country are provided in the main by three groups of doctors; the specialists at one end, the junior interns at the other, and in between them a body of practitioners training for specialist status known as registrars. In this country there are some 5,200 specialists. In the training group the registrars number some 2,800 practitioners at some level or other of the specialist ladder. The Minister has decided that as an act of future policy the number of practitioners under training in the registrar groups shall be regulated by the probable number of vacancies in specialist ranks. Dr. Hill agreed that this was a perfectly sound and reasonable proposition which he was not challenging. He quoted figures for England and Wales and said it had been calculated partly on a basis of age of existing specialists and partly no doubt on the mortality rate among specialists that 150 vacancies will arise each year for the next few years in the specialist ranks. There are 5,200 specialists and 150 vacancies that will arise —120 deaths and retirements and 30 additional specialist appointments.

Comprehensive Service Promised.—When the National Health Service was in its earlier and promotion stages, the prospect of real hope was held out that there would be available in all parts of the country a comprehensive specialist service. A modest beginning had been made. Dr. Hill thought it tragic that the calculated annual increase in the number of specialists to meet this demand is only 30 specialists a year. This would make an infinitesimal contribution to the original objective of the health service. One of the results of leaving the number of specialists approximately where it was is that the ranks of the registrars, that is, those under training as specialists, are to be massacred. There are some 2,800 practitioners training to be specialists. In order to fit into this policy of a tiny annual increase in specialist establishments, 1,100 of those trained and semitrained men are to be swept out of the registrar ranks.

Timid Attitude.—The freezing of the specialist-establishment at its present level (apart from the slight increase) and the cut in registrars was no doubt for financial reasons. The circular sent to regional boards (i. e., the bodies controlling registrar appointments in various groups of hospitals) and boards of governors (i. e., those controlling appointments of registrars in teaching hospitals) had detailed for each region its share of registrar posts under the new order. In a particular group that he examined, the circular meant that three quarters of the senior registrars would have to go as soon as possible after Jan. 1, 1951, and two thirds of the more junior registrars would go at the same time. Dr. Hill agreed that under special circumstances certain senior registrars could be kept on but in general they have to go. He said that this policy arises because of the timid attitude in relation to the future expansion of consultant services.

Important Work Gap.—The order means that 1,100 practitioners in various stages of training for specialist services to the community are to be told to leave the specialist ranks. Much of this training is being thrown away, and there is also the serious practical difficulty that in hospitals the registrars are not only under training for consultants' status but are doing an important part of the work of the hospital. The Ministry's circular says that the gap left by the registrars' elimination is to be filled by the utilization of part time services of general practitioners.

Dr. Hill would be the last to suggest that the general practitioner has not an important place in a hospital—indeed, that his position in hospitals should be stronger—but he considered that to suggest that the family doctor on a part time basis would undertake the kind of specialist work that many of these senior registrars have been undertaking is sheer nonsense. He urged that the whole position should be reexamined.

The registrar ranks had been swollen since the war because of the belief fostered by the government that there would be an expansion of the consultant services. Many are men of 32 to 35 who served in the forces during the war and have been training as specialists ever since. If the implied undertaking that there would be a consultant service everywhere is to be carried out, then an increase of establishment of 30 consultants a year is insignificant and extreme in relation to the problem. The revised establishment of registrars has been too drastic, and to act on the Ministry's circular and take away these registrars from the hospital will lower the quality of service of these hospitals for some time to come.

Broad Issues Sacrificed to Immediate Requirements.—He put the issue on a broad public basis, believing that, in observance of a sound principle of regulation of its establishments, injustice would be done to a large number of practitioners and their experience would be wasted. Once we have gone into the new position it will be years before we can so expand the training ranks so as to get an increase in the number of specialists.

Timid Attitude and Unwise Policy Application.—The Ministry has calculated that the country needs the equivalent of 7,500 full time specialists. Today we have 5,200, the majority of whom are part time, and our progress to the goal is to be at a rate of 30 a year. This timid attitude combined with lack of wisdom in the mode of applying this policy is not only dangerous in its relation to future hospital policy but will be damaging to the hospitals of this country from the early part of next year.

V 14
1951

CORRESPONDENCE

BRITISH NATIONAL HEALTH SERVICE

To the Editor:—I enclose an excerpt from a letter I have just received from a friend on the teaching staff at the University of Edinburgh. It is self explanatory and seems worthy of publication in THE JOURNAL, as it is a sign of the times and shows what happens in the program of managed social economy, where the inevitable always happens, namely, a leveling down rather than a building up.

"The latest turn in our own medical affairs will give those in the States who are opposed to a National Health Service very powerful ammunition. Having encouraged young doctors to undertake specialist training, the Ministry, at the request of the Treasury for economics, has decided that the only people they can, with comfort to themselves, get rid of are those persons who are fully trained, or are nearing the end of their training, and who because of the Ministry's failure to implement their previous promises, cannot get an appointment to the full consultant staff of a hospital. Consequently, some 1,300 young doctors have been asked for their resignations next fall, and have been told that the chances of their being taken on again, or of reaching specialist rank in this glorious welfare state, are virtually nil. Even the universities are not exempt, and I, in the senior grade under full lecturer, am one of those whose heads are on the block."

FRANK B. BERRY, M.D.,
71 East 71st Street, New York 21.

THE QUICK TEST

To the Editor:—The problem of hemorrhage caused by bishydroxycoumarin (dicumarol®) which was discussed editorially in THE JOURNAL Dec. 23, 1950 (page 1466) deserves serious consideration. It involves more than "the vagaries of the Quick test of prothrombin time." If this test is carried out as I described in THE JOURNAL (**110**:1658 [May 14] 1938), with the correction of a typographical error (**111**:1775, [Nov. 5] 1938), it will be found that the vagaries are conspicuously absent. Much of the trouble can be attributed to the indiscriminate flood of modifications of the original test and to the reckless introductions of various types of thromboplastin. The thromboplastic reagent that I developed was the result of years of meticulous study and testing. In spite of its commercial possibilities, it was made available without patent attachments. It was described so explicitly that any technician who is capable of following cook book directions can prepare it. If, therefore, any laboratory fails to use my test successfully, it may be advisable for one to inquire how accurately such a laboratory performs other tests. The bleeding in bishydroxycoumarin therapy is only part of a larger problem. It comes forcefully to one's attention, however, because massive hemorrhage is always impressive.

ARMAND J. QUICK, M.D.,
Department of Biochemistry
Marquette University School of Medicine, Milwaukee.

MUMPS AND APPENDICITIS

To the Editor:—In the April 29, 1943 issue of the *New England Journal of Medicine* is a report on the incidence of appendicitis in 29,802 cases of the common contagious diseases, which was written by Dr. M. Goodman and me. Since that time, there have appeared articles in various journals with single case reports of appendicitis complicating communicable diseases. The authors do not mention our study and present the facts as something new and stimulating in medicine. For example, in THE JOURNAL of Dec. 23, 1950, the article by Dr. F. Schaar contains a single case report of mumps complicated by acute appendicitis. The author refers to only nine similar cases in the literature, dating from 1903.

We reported in our series from the Willard Parker Hospital, New York, 8 cases of this type in our mumps group during a period of only five years.

I do not mean to be critical of Dr. Schaar, who wrote an excellent article and accidentally missed a few references. In general, however, any single case report appearing in a publication of the caliber of THE JOURNAL should have behind it a thorough search of the literature. Otherwise, the impression is given that a certain condition is extremely rare, and consequently physicians are lulled into a sense of false security and are not alert for the appearance of these conditions.

IRVING SILVERMAN, M.D.,
416 Marlborough Street, Boston.

ELECTROLYTE BALANCE IN SHOCK

To the Editor:—I read with interest the letters from Drs. Rosenthal and Tabor in THE JOURNAL (**144**:413 [Sept. 30] 1950) and Dr. Hurley (**144**:1502 [Dec. 23] 1950) which were elicited by an article by Dr. Evans. (The Burn Problem in Atomic Warfare, *J. A. M. A.* **143**:1143 [July 29] 1950). It is gratifying to find that interest in the use of isotonic sodium chloride solution in the prevention of shock is receiving so much attention. Miss Friedberg, Mr. Asher and I reported in the *American Journal of Physiology* (**140**:65 [Oct.] 1943) that isotonic sodium chloride was useful in preventing the shock following venous occlusion in the dog over and above its value in replacing blood volume lost. We were concerned at that time about the possible benefits of the sodium chloride itself, since it corroborated some previous work by Dr. S. T. Killian, Mr. R. Asher, Dr. S. Perlow and me on the "Prophylactic Action of Desoxycorticosterone in Shock Due to Massive Venous Thrombosis" (*Am. J. Physiol.* **137**:79, 1942). It was suggested then that this effect was mediated by means of electrolyte alterations. Considerably more attention needs to be given in clinical therapy to the early stages of shock when the electrolyte balance and certain of the adrenal cortex hormones may play an important prophylactic role. It is to be hoped that this subject will now receive the attention it deserves.

LOUIS N. KATZ, M.D.,
Cardiovascular Department,
Medical Research Institute,
Michael Reese Hospital, Chicago.

INTERNATIONAL SEMINARS ON INFANT METABOLISM

To the Editor:—Two international seminars on the general subject of infant metabolism were held in Leyden, The Netherlands (October 15-30), and in Stockholm, Sweden (Nov. 1-15, 1950), under the auspices of the Exchange of Scientific Information of the World Health Organization of the United Nations and at the invitation of the countries mentioned. Delegates from five neighboring countries (Belgium and France, and Denmark, Finland and Norway) together with an American group and one Australian (a staff member of the World Health Organization) were invited to these seminars. Participants in the seminars came, therefore, from nine countries and represented 21 universities.

The project was the first of its kind to be undertaken by the World Health Organization. Its purpose was to effect an exchange of information on a research level between countries where medical investigation is highly developed, and it serves to supplement currently existing programs in health care in countries with less highly developed medical facilities. The preliminary preparations and the organization of the programs were under the combined supervision of the respective chairmen of the two seminars (Prof. E. Gorter, head of the depart-

ment of pediatrics at the University of Leyden, and Prof. Arvid J. Wallgren, head of the department of pediatrics at Norrtulls Hospital, Stockholm), the director of the Exchange of Scientific Information of the World Health Organization and the chairman of the visiting American team. The panels were conducted in an informal manner analogous to the type held frequently in the United States. This highly productive type of conference represented an innovation in these European countries.

In broad terms, the subject for discussion was current physiological, biochemical and clinical investigations in infant metabolism. Individual panels were devoted to the metabolism of minerals, vitamins, protein, carbohydrates and fat, metals, energy and water and electrolytes. Other subjects included problems of prematurity, developmental aspects of endocrine and renal physiology, fetal nutrition, evaluation of nutritive status, the problem of anoxia and the use of isotopes in medical and biologic investigation.

The delegates selected by their respective governments to attend the meetings included the heads of the departments of pediatrics from the invited and host countries, other pediatricians doing clinical or laboratory investigation and prominent scientists working in related fields. The high scientific level of the meetings is attested to by the participation of three Nobel prize winners in medicine.

The meetings were conducted in English with concurrent French interpretation (in Leyden) and complete transcriptions were made of all the proceedings. It is hoped to have these transactions published in the near future for worldwide distribution. The meetings not only provided an opportunity for the interchange of scientific information but for development of personal interrelationships, which were equally important. Impressions gained from the written reports of many of the foreign representatives as well as the unanimous opinion of the American group indicated that the objectives of the seminars were satisfactorily fulfilled. These favorable reactions may suggest the planning of similar seminars on other subjects in the future.

American Team to the Netherlands and Sweden for WHO Seminars on Infant Metabolism:
HENRY L. BARNETT, M.D.
OTTA A. BESSEY, PH.D.
GENEVIEVE STEARNS, PH.D.
SAMUEL Z. LEVINE, M.D., Chairman.

TREATMENT FOR DIABETIC COMA

To the Editor:—In their article in THE JOURNAL (144:86 [Sept. 9] 1950) Drs. Story and Root compare the therapies for diabetic coma at the New England Deaconess and the Pennsylvania hospitals. I do not question the sincerity of these authors, but comparison of the clinical course and treatment of a patient whom they did not see with one who was under their care presents the potential hazard of leading the readers to believe things to be as they were not. I have the impression that this article would lead the reader to believe:

1. That our publication (Duncan, G. G.; Carey, L. S., and Hudson, M. T.: *M. Clin. North America* 33:1537, 1949) was championing the cause of alkalies and transfusions of plasma in the treatment for diabetic coma. At the Pennsylvania Hospital we do not use alkali therapy as routine, but I am confident that, if Drs. Story and Root would give alkali therapy a trial in the manner we recommended (in cases of very low carbon dioxide-combining power and of extreme hyperpnea, the dose of racemic sodium lactate being sufficient to raise the carbon dioxide-combining power to a relatively innocent level —30 volumes per cent) they would endorse its use under similar circumstances, if for no other reason than to correct, with remarkable promptness, the extreme degrees of hyperpnea.

As for the plasma, our patient was receiving isotonic sodium chloride solution very rapidly, but in spite of this the systolic blood pressure fell abruptly from 95 mm. of mercury until the pulse became imperceptible, and the patient was extremely ill. At this stage 350 cc. of plasma was administered simultaneously with the sodium chloride solution but in a different vein, with the result that the pulse became perceptible, the blood pressure rose to 100 systolic and 70 diastolic, accompanied by a very perceptible clinical improvement. I believe the plasma did no harm. I believe it saved the patient's life, and I commend its use to others under the same circumstances. Actually, in a period of 10 years this is the only patient whom I have attended in diabetic coma on my service to receive plasma. Circumstances arise that will take us off beaten paths; I hope never to be blind to indications beyond those outlined in standardized outlines of therapy.

2. That the recovery of their one patient without alkali, transfusions or potassium preparations was proof that this was the better treatment. This is not necessarily so. We are probably old fashioned, because we still believe that, on clinical appraisal of the patient and with what help the laboratory can afford us, it is wise to pursue those measures that tend to restore physiological values.

3. That electrocardiographic indications of mild degrees of hypopotassemia are not an indication for the administration of potassium chloride. I fear that, because Drs. Story and Root's patient recovered without potassium therapy when hypopotassemia was detected, physicians not so learned in the intricacies of this therapy as those at the Deaconess Hospital may take this to mean that hypopotassemia is not a dangerous complication and lives may be lost as a result. Certainly, potassium chloride given orally to a patient who is excreting large amounts of urine can do no harm, and it seems certain from accumulating research and clinical data that this therapy is beneficial and even life saving.

4. That the carbon dioxide-combining power of 4.4 volumes per cent indicates without further consideration a poorer prognosis than 12 volumes per cent. In regard to the carbon dioxide-combining power of 4.4 versus 12 volumes per cent, actual values may mislead. All other features being equal, the lower value would carry the poorer prognosis. However, we observed one of the most prompt recoveries in a patient having a carbon dioxide-combining power of 2 volumes per cent. Care must be taken in using the carbon dioxide-combining power as a criterion for the gravity of the coma. It would appear to me that the prognosis for a patient in diabetic coma who has a blood pressure of 120/68 who had been in coma no longer than three hours, despite the duration of the diabetes, would be better than that of an excessively obese pulseless patient who had been in coma for more than seven hours.

5. That the patient in coma with diabetes of long duration is "particularly liable to development of severe insulin resistance," in contrast to a very obese patient who is also in coma. The long duration of the diabetes has not nearly as great an effect in the development of resistance to insulin as has obesity in a case of diabetic coma. My experience has been the antithesis of that of the authors in this respect, and it is regrettable that references to studies proving their inference were not included in their publication.

6. That our patient was overhydrated. One would be easily misled into thinking that our patient was overhydrated when the output of urine was 3,810 cc. in the first 24 hours. It is well known that a diabetic patient may excrete large quantities of urine and be very dehydrated. We attributed the output of 3,360 cc. in the first 12 hours to the hyperglycemic effect on the renal epithelium. Overhydration was not present clinically, and the specific gravity of the blood was a high normal (1.059), a fact not referred to by Drs. Story and Root. Furthermore, the output in the second 12 hours, when the hyperglycemia was abating, was only 450 cc.

7. That alkali administration by raising the carbon dioxide-combining power excludes the only simple means of evaluating the formation and oxidation of ketone acids. I commend for widespread use the testing for acetone in the plasma as a more consistently reliable test of the state of the formation of ketones than is the carbon dioxide-combining power. I do not contribute to the sanctity of complicated tests when more reliable and simpler ones can be placed in the hands of the family physician.

8. That we are proponents of dextrose therapy early in the treatment for diabetic coma. Our patient was not given dex-

V 14
1951

trose until after eight hours of treatment. I do not believe the dextrose given early will do harm; neither do I think it necessary while hyperglycemia of marked degree exists. Hence we do not use it early in the treatment and often not at all. The dextrose controversy is, if I may say so, a bit of a tempest in a teapot, and, I believe, a teapot of small dimensions.

Fortunately, both patients recovered. Nothing much has been proved except the effectiveness of therapy in each case. I am grateful to Drs. Story and Root, who have provided this opportunity for me to clarify certain aspects that apparently were not clear in our publication.

GARFIELD G. DUNCAN, M.D.,
330 South Ninth Street, Philadelphia 7.

INTRAVENOUS ANTIHISTAMINICS FOR RELIEF OF VOMITING

To the Editor:—The suggestion recently made in this section of THE JOURNAL (**144:**1283 [Dec. 9] 1950) by Drs. Rudolph, Park and Hamilton, that dimenhydrinate administered rectally be used for the control of postanesthesia vomiting prompts us to cite our experience in treating this condition. Contrary to the opinion of these correspondents, we believe that sufficient pharmacologic information is already available to serve as a valuable guide to therapy in emesis.

Dimenhydrinate (dramamine®) is the 8-chlorotheophylline salt of diphenhydramine (benadryl®). Pharmacologic studies have shown that the theophylline portion of the molecule is ineffective in preventing apomorphine-induced emesis in dogs (White, J. M.; Freedman, D.; McCawley, E. L., and Gray, W. D.: *Federation Proc.* **9:**325 [April] 1950) and that the active portion of the dimenhydrinate molecule is the diphenhydramine component. Apomorphine-induced emesis is controlled with 1 mg. of diphenhydramine and 2 mg. of dimenhydrinate per kilogram of body weight. Since diphenhydramine hydrochloride is an acidic salt, oral administration may occasionally produce sufficient local irritation in the stomach to cause nausea and vomiting. Dimenhydrinate, being an insoluble salt, is less irritating to the stomach. Diphenhydramine is available in a form permitting easy intravenous administration (sterivial benadryl®). We find that the intravenous route has the advantage that the antiemetic effect is immediate. Absorption of the drug is complete and not complicated by loss through vomiting after oral administration of tablets or imperfect or irregular absorption from the rectum of an insoluble suspension.

Several clinical reports have pointed out the usefulness of dimenhydrinate in the treatment of nausea and vomiting in such conditions as motion sickness, electroshock, migraine and radiation sickness and during minor surgical procedures. One would expect similar reports for diphenhydramine; these are now forthcoming in published articles describing its usefulness in the control of nausea and vomiting during prolonged streptomycin therapy (Bignall and Crofton: *Brit. M. J.* **1:**13, 1949) and in pregnancy (Finch: *Am. J. Obst. & Gynec.* **58:**591, 1949). We can add to this list our successful use of this latter drug in controlling the nausea and vomiting of uremia and following inhalation anesthesia. The usual antiemetic dose we have given intravenously is 50 to 100 mg. of diphenhydramine repeated at three to four hour intervals if necessary. The safety of this procedure is illustrated by the fact that we have administered, for other purposes, 300 to 400 mg. intravenously in elderly cardiovascular patients without serious complication.

Small doses of apomorphine are believed to excite the central vomiting center, which is located in the dorsolateral portion of the medullary reticular formation. In animals when this center is destroyed, apomorphine fails to provoke emesis. Presumably dimenhydrinate and diphenhydramine depress this vomiting center. One might therefore conclude that there may be clinical circumstances where regurgitation is produced by local irritation of the stomach and without involving the vomiting center. Dimenhydrinate and diphenhydramine would fail to protect against this type of vomiting.

RICHARD J. KULASAVAGE, M.D.,
ELTON L. MCCAWLEY, M.S., Ph.D.,
University of Oregon Medical School,
Portland, Ore.

CEREBROVASCULAR ACCIDENTS

To the Editor:—Recently there was a furor, mainly in lay publications, on the treatment of cerebrovascular accidents by injection of the stellate ganglions. These articles would have us believe that the results are miraculous and that we now have a simple treatment that offers spectacular results in a majority of cases, so that the dread fear of paralysis is no longer necessary. There is no differentiation made as to whether the stroke is due to hemorrhage or thrombosis, and the time element after the vascular accident is minimized.

I have had sufficient experience with this method to deplore this publicity and to have seen some of the unpleasant results. There is no doubt that in cases of cerebral thrombosis the treatment is effective if it is done very soon after the onset. In these cases it is frequently also of value even after long periods of time, even up to one year or more.

To expect such results following a cerebral hemorrhage seems to me to enter the realm of the fantastic. One need only consider the pathology and visualize the hemorrhage and the consequent destruction of cerebral tissue in the internal capsule of the brain to realize the improbability of any spectacular improvement from stellate injection. The results obtained are no doubt due to improvement in cerebral blood supply and release of the vascular spasm that occurs. That explains the results in thrombosis, but how it could work equally well or even comparably well in hemorrhage is beyond my comprehension.

My co-workers and I have had good results in thrombosis, but not nearly so good as reported. However, in true hemorrhage, we have hesitated to do it, and I have yet to have a spectacular result in those cases in which we have had the temerity to try it. The procedure definitely is of value for known physiological reasons, but its wholesale use in all kinds of cerebral accidents is deprecated. Fortunately it is a simple and usually innocuous procedure.

PAUL G. FLOTHOW, M.D.,
1317 Marion Street, Seattle 4.

ESTROGENS AND BREAST CANCER

To the Editor:—I regret the error that resulted in the substitution of "intravenously" for "intramuscularly" in my article on cancer of the breast which appeared on page 516 of THE JOURNAL Oct. 14, 1950. Neither I nor others who read my manuscript noticed this unfortunate mistake. You brought it to my attention after the article was already in print and were kind enough to publish a correction (Oct. 21, 1950, page 701). Apparently this correction escaped the notice of Dr. Carlos P. Lamar of Miami, Fla. (*J. A. M. A.* **144:**1110 [Nov. 25] 1950) and several others who have written me about it. I find that I also overlooked the same error in other articles recently published on this subject, notably the *Journal of the Michigan State Medical Society* (March 1950, page 7) and in the book "Clinical Therapeutic Radiology" (page 231), which I edited. My only excuse is that the paragraphs in which this mistake was made were copied from the same manuscript and not scrutinized carefully enough in proofreading.

Dr. Lamar criticized my statement "the administration of estrogens may induce cancer of the breast." The experimental proof that he cites is well established. However, we know little about what may occur in humans; therefore, my statement simply constituted a warning. My co-workers and I have observed clinically that in some women with cancer of the breast the condition appears to become worse after the administration of testosterone propionate. I have seen two women with advanced cancer of the breast who had been given this medication continuously over several years for what may have been menopausal disturbances. Both observed gradual changes in their breasts and later discovered tumors. These two cases may prove little; however, I believe that prolonged testosterone therapy may be hazardous for persons without cancer.

U. V. PORTMANN, M.D.,
Cleveland Clinic, Cleveland 6.

MEDICAL MOTION PICTURES

Return to Life: 16 mm., black and white, sound, showing time 15 minutes. Produced in 1949 by Felix Films and the Disabled Ex-Service Men's Association in Finland. Procurable from (service charge $1) Boston School of Occupational Therapy, 7 Harcourt Street, Boston 16.

This report type film portrays the experiences of an ex-service man of the Finnish army who has tuberculosis and who, on his return to civilian life, has not been able to find any work other than heavy labor. Physical examinations show that his condition is not improving, and he accepts the advice that he go to the trade school that has been set up in a rural area. For a year, in the company of many others with similar problems, he undertakes a program of vocational instruction. The scenery, photography and personalities at this point are extremely attractive, and it is evident that the program is carried out with commendable skill. The final summary contrasts the unhappy situation of the young unskilled worker in the beginning with his good fortune in having learned a trade and having been inspired by a sojourn among the lakes and forests of his country.

The effect of this nontechnical film is to show the need of vocational rehabilitation and to illustrate some of the technics. It is effective in setting forth the possibilities in an attractive and convincing manner. It is not intended for use in specialized instruction and could be understood and appreciated by most lay audiences. The photography and narration are very well done.

Search: 16 mm., black and white, sound, showing time 20 minutes. Produced in 1950 for The National Association of American Business Clubs by Tom Marker. Procurable from The National Society for Crippled Children and Adults, 11 South LaSalle Street, Chicago.

This film is a dramatic portrayal of the daily life of an 11 year old boy with cerebral palsy. The technic used in the film shows Danny Jackson Jr. alternately as a handicapped and as a physically normal child. The audience sees Danny in the ordinary situations of everyday life, first as he really is, then as he would like to be. It shows his reactions to the other children and adults of the neighborhood, and his friendship for some of them is explained by their tactful way of dealing with his handicap. However, the unfortunate effects of his encounters with selfish, stupid and immature persons are also shown.

A number of important points which relate to the cerebral palsied child are explained, for example, the fact that these children often have good minds but have difficulty in expressing their thinking; the role of the school in the development of such children; the responsibility of parents in learning how to deal adequately with their children, and, perhaps of most importance, the fact that such children should be treated as normal human beings rather than with maudlin sympathy. Some may feel that portions of the film are too highly dramatic.

Although some of the scenes are unduly long, which undoubtedly detracts from its value, this film is recommended for both the young and adult audience, especially for teachers, parents and youth leaders. The photography and sound are good.

Town Without Water: 16 mm., black and white, sound, showing time 10 minutes. Produced in 1950 by and procurable from A. F. Films, Inc., 1600 Broadway, New York 10.

This is a documentary type of film designed to promote the work done by the Economic Cooperation Administration in foreign countries using Southern Italy as an example. The situation described is a village of approximately 3,000 persons, built on high ground; there is no water available except that drawn by horse cart. A large part of the film is used to show the restricted use of water for drinking and domestic purposes. The water brought in is frequently responsible for disease, particularly typhoid, and over a period of generations, the aqueduct that might present an additional supply has been discussed but never developed. Under the direction of ECA an aqueduct is constructed from a spring some distance away to the village, and the climax is reached when the community celebrates the opening of the village fountain.

Though it is recognized that the presence of water in a village of this character is an important public health measure and should have considerable effect on the life and health of the people, there was no indication that any safeguards were instituted for protection of this water supply; the probabilities are that the disease rates would remain about the same as they had been under the old system. The film shows the work done by the ECA but does not indicate that all is being done that should be done at the time municipal facilities such as a water supply are installed.

This film is recommended for a lay adult audience, however, with explanations it could probably be used at the high school level. The picture moves at a very slow pace; otherwise the photography and narration are good.

Safe Service: 16 mm., black and white, sound, showing time 17 minutes. Produced in 1950 by Institute of Visual Training for the Public Health Committee of the Paper Cup and Container Institute. Procurable from Institute of Visual Training, 40 East 49th Street, New York 17.

Criticism by an unreasonably fussy customer on how to cook an egg causes the lunch counter cook in this instance to imagine that the customer has changed places with him. He imagines that the former customer makes one mistake after another as he handles and attempts to store his paper service. A series of humorous incidents follow which allow the cook to point out the mistakes and instruct his bungling former customer in the proper sanitary technics to be observed.

The film deals exclusively with single service, disposable paper containers as used for serving food and beverages in restaurants and soda fountains and covers only a small fraction of the problems food handlers encounter in utensil sanitation. Despite this and despite the fact that this is obviously a promotional film for the paper cup industry, it is a very acceptable film for illustrating the proper technics.

It is apparently designed for the use of sanitation personnel in the conduct of food handlers schools, where persons engaged in food dispensing are taught the elementary principles of sanitation, food handling and service to the customer. It would also be valuable for training of sanitarians and food instructors and as an instructional film at the graduate level of public health training schools. The film has an element of humor that will attract and hold the attention of the audience it is intended to influence. The photography and sound are excellent.

NEW MOTION PICTURE ADDED TO A.M.A. FILM LIBRARY

A Bronchoscopic Clinic in Kodachrome. 16 mm., color, silent, 1,100 feet (1 reel), showing time 30 minutes (run at 24 frames per second). Prepared in 1949 under the auspices of the Jacques Holinger Memorial Fund by Paul H. Holinger, M.D., Kenneth C. Johnston, M.D., and Frank J. Novak, III, M.D., Departments of Otolaryngology and Bronchoesophagology, St. Luke's Hospital and the University of Illinois, College of Medicine, Chicago. Procurable on loan (service charge $5) from the Committee on Medical Motion Pictures, American Medical Association, 535 North Dearborn Street, Chicago 10.

This film portrays the value of, and the indications for, bronchoscopy in the study of diseases involving the tracheobronchial tree. It clearly and beautifully demonstrates the bronchoscopic appearance of a variety of such lesions. A short abstract of the clinical history of each patient, presented in association with roentgenograms of the thorax and the pathological findings, adds greatly to the teaching value of the film. The technic employed for the performance of intratracheal and intrabronchial photography is demonstrated and, in the hands of the authors, appears to be relatively simple. The film clearly shows that skill and infinite and painstaking care must have been extended to obtain such excellent photography.

This is a motion picture that should be studied by all physicians interested in diseases of the chest and in bronchoscopy and should be available to all medical schools for student teaching, for it demonstrates visually factors that otherwise are hard to grasp. It is certainly suitable for any type of medical meeting and should be of interest to all physicians. The photography is outstanding.

V 14
1951

MEDICAL LITERATURE ABSTRACTS

AMERICAN

A.M.A. Archives of Internal Medicine, Chicago

86:797-972 (Dec.) 1950

Erythrocyte Coproporphyrin: Variation in Respect to Erythrocyte Protoporphyrin and Reticulocytes in Certain of Anemias. C. J. Watson.—p. 797.
Prophylaxis of Motion Sickness: Evaluation of Some Drugs in Seasickness. H. I. Chinn, W. K. Noell and P. K. Smith.—p. 810.
*Pheochromocytoma and Essential Hypertensive Vascular Disease. M. Goldenberg, H. Aranow Jr., A. A. Smith and M. Faber.—p. 823.
Current Concepts of Malaria, with Review of 510 Admissions to Veterans Hospital. R. Schwartz, M. M. Mansuy and W. C. John.—p. 837.
Alterations on Renal Function, Including Hematuria, in Man During Intracranial Air Studies: Alterations in Cardiac Function. S. J. Weinberg, J. R. Goodman and M. C. Bushard.—p. 857.
Studies of Immunologic Reactions of Patients with Hodgkin's Disease: Antibody Reaction to Typhoid Immunization. G. T. Hoffmann and A. Rottino.—p. 872.
Gangrene of Extremities: Recently Recognized Complication of Severe Meningococcic Infection. H. A. Weiner.—p. 877.
Progress Notes of 50 Diabetic Patients Followed 25 or More Years. R. E. Reuting.—p. 891.
Action of Atropine on Cardiovascular System in Normal Persons. L. A. Nalefski and C. F. G. Brown.—p. 898.
Liver Dysfunction Following Abdominal Operations: Significance of Postoperative Hyperbilirubinemia. W. Geller and H. J. Tagnon.—p. 908.
*Studies on Effects of Parenteral Quinidine Administration. H. Blinder, J. Burstein, W. Horowitz and others.—p. 917.

Pheochromocytoma and Essential Hypertensive Vascular Disease.—Eighteen patients with pheochromocytoma and persistent hypertension and four patients with pheochromocytoma and paroxysmal hypertension were subjected to a clinical analysis. Fifteen tumors were analyzed chemically. There was no essential difference in total epinephrine and/or arterenol content and the ratio of epinephrine to arterenol in the two groups. In patients with pheochromocytoma and persistent hypertension, when the tumor contained epinephrine predominantly, or a large amount of arterenol, the picture was characterized by tachycardia, hyperhidrosis, hypermetabolism and, frequently, hyperglycemia. Results of tests with piperoxan hydrochloride were positive. When the tumor was small and contained almost solely arterenol, the syndrome of essential hypertensive vascular disease was closely mimicked. An increase in basal metabolic rate might be present, and results of the test with piperoxan hydrochloride were positive. This correlation is limited in that in certain stages of the disease no evidence of increased circulating catechols (epinephrine and arterenol) can be obtained; i. e., hypertension may be present, with normal basal metabolic rates, normal pulse rate, lack of hyperglycemia and negative piperoxan reaction. Intermittent, as well as continuous, secretion of the catechols by the tumor may lead to persistent hypertension. In seven of 12 patients whose chromaffin tumors were operatively excised, hypertension persisted for varying periods although all other clinical signs regressed promptly. This corroborates the view that excessive amounts of circulating catechols need not be constantly present for maintenance of elevated blood pressure. The possible relation of this secondary hypertension in pheochromocytoma to essential hypertensive vascular disease is discussed.

Parenteral Quinidine Administration.—Blinder and his associates studied the effects of quinidine lactate administered parenterally (intramuscularly or intravenously) to 59 patients. Of these, 22 had normal hearts, 15 had abnormal hearts (with regular sinus rhythm) and 22 presented cardiac arrhythmias. Quinidine lactate, 0.65 Gm., administered intravenously produces a maximal cardiac effect, as determined by changes in QT_c (corrected QT), within 15 minutes. The effect is greater than that attained with identical doses administered orally or intramuscularly; however, the toxic effect of intravenous administration makes its use hazardous. Pseudoventricular tachycardia occurred in two subjects. Quinidine lactate, 0.65 Gm., administered intramuscularly is no more toxic than quinidine given orally in similar doses. A maximal cardiac effect is attained in about 30 minutes in subjects with regular sinus rhythm (normal and abnormal hearts). The duration of peak effect is between two and four hours in persons with normal hearts and at least six hours in those with abnormal hearts. A small but significant quinidine effect persists after 24 hours. Of 22 patients with cardiac arrhythmias, 15 were restored to regular sinus rhythm by single or multiple parenteral doses of quinidine, although efforts were not primarily directed toward treatment of the arrhythmia. The maximal effect, as established by slowing of the ectopic pacemaker, occurs between 30 and 60 minutes after the intramuscular administration; thus, when rapid therapeutic effect is important, hourly administration is indicated, otherwise, administration should be at intervals of three to four hours.

A.M.A. Archives of Ophthalmology, Chicago

44:761-908 (Dec.) 1950

Goniopuncture—New Filtering Operation for Glaucoma: Preliminary Report. H. G. Scheie.—p. 761.
Unilateral Internuclear Ophthalmoplegia: Report of Eight Clinical Cases with One Postmortem Study. D. G. Cogan, C. S. Kubik and W. L. Smith.—p. 783.
Ocular Therapeutic Principles and Practical Applications. E. B. Dunphy.—p. 797.
Factors Influencing Postoperative Results in Concomitant Convergent Strabismus. J. H. Dunnington.—p. 813.
Ophthalmologic Findings in Spontaneous Thrombosis of Carotid Arteries. H. S. Sugar, J. E. Webster and E. S. Gurdjian.—p. 823.
Amino Acid Composition of Tissue Proteins of Cornea, Sclera, Vitreous and Retina. A. J. Schaeffer and J. D. Murray.—p. 833.
Ophthalmic Symptoms in Giant Follicular Lymphadenopathy. R. Törnquist.—p. 842.
Pterygium: Brief Review and Evaluation of Certain Methods of Treatment. J. H. King Jr.—p. 854.
Adherence Syndrome: Pseudoparalysis of Lateral or Superior Rectus Muscles. L. V. Johnson.—p. 870.
Glaucoma: Review of Literature, 1949-1950. H. G. Scheie.—p. 883.

A.M.A. Archives of Otolaryngology, Chicago

52:671-842 (Nov.) 1950

Corrective Surgery of Nasal Deviations.* J. M. Converse.—p. 671.
Monostotic Fibrous Dysplasia of Mastoid and Temporal Bone. C. E. Towson.—p. 709.
Normal Development of Ear and Its Mechanics. F. Altmann.—p. 725.
*Tuberculous Retropharyngeal Abscess Treated by Surgery and Streptomycin. M. T. Smith.—p. 767.
Deafness and Kernicterus. R. N. Barnett and C. F. Ryder.—p. 771.
Abscess of Nasal Septum and Orbital Cellulitis in Infant. G. D. Hayden, P. N. Pastore and K. Kundert.—p. 773.
Retropharyngeal Abscess. F. L. Bryant.—p. 776.
Intratemporal Sarcoma of Facial Nerve. K. Kettel.—p. 778.
Recruitment Phenomenon in Craniocerebral Trauma: Report of Representative Cases. M. Saltzman.—p. 782.
Allergy. E. L. MacQuiddy and E. A. Holyoke.—p. 794.

Tuberculous Retropharyngeal Abscess.—An unusual case of tuberculous retropharyngeal abscess without involvement of the cervical vertebrae is reviewed. A woman aged 37 had a history of pulmonary tuberculosis in 1945, and tuberculous involvement of the supraclavicular glands in February 1947. These nodes broke down, drained and then healed with phototherapy and palliative treatment. In August 1947, a mass was observed in the posterior pharyngeal wall. This gradually increased in size and showed signs of fluctuation. Aspiration yielded about 5 cc. of milky fluid containing tubercle bacilli.

The Association library lends periodicals to members of the Association and to individual subscribers in Continental United States and Canada for a period of five days. Three journals may be borrowed at a time. Periodicals are available from 1940 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted.

The infection probably occurred through the mucous membrane of the pharynx from contact with infected sputum. Streptomycin was administered intramuscularly in doses of 1 Gm. daily for 33 days. During this time the swelling in the retropharyngeal space increased. Repeated roentgenograms of the cervical vertebrae failed to show any pathological process in the bone. A vertical incision was made through the mucous membrane over the center of the mass. The abscess was enclosed in a capsule, which was readily shelled out down to the lower posterior pole, where it was adherent and where granulation tissue was found. The abscess cavity contained approximately 10 cc. of milky fluid and a small amount of semisolid cheesy material. The granulation tissue was coagulated with diathermy. The parenteral administration of streptomycin was continued for 40 days after the operation. Healthy granulation tissue formed in the abscess cavity, which healed completely in less than three weeks. The pharyngeal lesion remains healed after two and one-half years.

A.M.A. Archives of Surgery, Chicago

61:787-976 (Nov.) 1950

*Evaluation of Deep Veins Following Previous Thrombophlebitis. J. C. Luke.—p. 787.
*Chronic Occlusion of Bifurcation of Aorta. A. B. Ortner and R. A. Griswold.—p. 793.
Lumbar Sympathectomy in Peripheral Vascular Disease. O. C. Julian and E. J. Shabart.—p. 804.
*Sympathectomy for Hypertension: Experience with 52 Patients Followed One to Three Years Postoperatively. J. E. Conley and F. Raine. —p. 810.
Recent Experiences with Intestinal Resection in Infants and Children. C. D. Benson and H. R. Sharpe Jr.—p. 822.
Removal of Large Bowel in One Stage in Selected Cases of Ulcerative Colitis. P. I. Hoxworth and W. R. Culbertson.—p. 834.
En Masse "Pelvic Viscerectomy" with Ureterointestinal Anastomosis. E. S. Brintnall and R. H. Flocks.—p. 851.
Effectiveness of Soaps Containing Hexachlorophene for Surgical Scrub: Special Reference to Bar Soap. R. R. Best, J. D. Coe, G. B. McMurtrey and M. J. Henn.—p. 869.
Cutis Grafts: Clinical and Experimental Observations. S. A. Swenson Jr.—p. 881.
Results in Hip Joint Fusion. K. Speed.—p. 890.
Anesthesia in Cardiac Surgery: Observations on 362 Cases. W. O. McQuiston.—p. 892.
Treatment of Mitral Valve Stenosis by Resection and Replacement of Valve Under Direct Vision. G. Murray.—p. 903.
Surgical Management of Advanced Cancer of Breast. R. K. Gilchrist. —p. 913.
Peritoneal Fluid Amylase Determinations as Aid in Diagnosis of Acute Pancreatitis. L. M. Keith Jr., R. M. Zollinger and R. S. McCleery. —p. 930.
Experiences with Vagotomy and Sympathectomy in Treatment of Chronic Recurrent Pancreatitis. F. J. Rack and C. W. Elkins.—p. 937.
Observations on Intrinsic Blood Supply of Esophagus. S. E. Potter and E. A. Holyoke.—p. 944.
Esophageal Duplications. H. T. Langston, W. M. Tuttle and T. B. Patton.—p. 949.
Duplications of Intestinal Tract in Infants. H. C. Fisher.—p. 957.

The Deep Veins After Thrombophlebitis.—Luke studied by means of retrograde venography the deep veins of the leg in patients who had had thrombophlebitis from two to 25 years previously. He found that minimal venous damage could affect a leg as seriously as almost complete venous obliteration. In 10 of the 28 cases, partial or complete blockage of veins had occurred early in the disease and yet the patients had the complications seen in those whose veins remained patent. The author deduces from this that ligation of deep veins is not an acceptable procedure. The improvement occasionally seen following vein ligation could be due to the periarterial sympathectomy that of necessity is done on the femoral artery when it is freed and retracted to expose the vein. The author reemphasizes the part played by associated lymphatic blockage in the production of postphlebitic complications. This may be due to involvement of a large lymphatic channel coursing on the anterior aspect of the femoral vein. The edema resulting from chronic lymphatic obstruction and venous stasis favors the growth of organisms gaining entrance to this devitalized tissue. Therefore, the correction of chronic edema by means of either postural drainage of the leg or good compression bandages is most important in treatment. Active exercises of the leg are necessary to promote lymphatic and venous return. Regardless of the therapy used, the underlying factors in postphlebitic complications are still present, and continued care of the leg is an absolute necessity. All patients should be given a thorough explanation of their condition as well as the following instructions: Wear an elastic stocking all day. Do not stand for more than 30 minutes without sitting down for 15 minutes and elevating the leg. Get into the habit of flexing the toes and rising on tiptoe frequently. Plan your day so that you can lie down for two to three half-hour periods and elevate your leg to a 45 degree angle (on the back of a straight backed chair). Whenever you sit down, elevate your leg. At night raise the foot of the bed about six inches. Apply a bland cold cream to the affected skin at night about every second day. Avoid irritation of the leg (sunburn, hot water bottles) and bumping, bruising or scratching the leg.

Chronic Occlusion of Bifurcation of Aorta.—Thrombotic occlusion of the aortic bifurcation occurs in all age groups. In infancy and childhood it is associated with infection; later in life the cause is atherosclerosis. The typical symptoms of chronic occlusion of the terminal aorta are fatigability of the lower extremities, intermittent claudication, pain in the calves and thighs and frequently in the hips and the lower part of the back, coldness of the feet and, in the male, impotence. There are various forms of therapy, but that recommended by Leriche consists of early lumbar sympathectomy plus segmental aortectomy when feasible. The authors treated three patients, all of whom improved. On the first patient who had bilateral involvement, only a unilateral sympathectomy was done. The authors consider this inadequate treatment, but the patient felt so much better that he would not consent to further surgical intervention. In the two cases in which resection of the involved segment of the aorta was done, it was impossible to go above the proximal extension of the thrombus. In one it would have interfered with renal circulation, while in the other it would have meant impingement on an already narrowed aortic lumen. Although the authors tried to follow the tenets set down by Leriche, they are not sure that resection of the obliterated zone is essential for maximum improvement. There is little reason to believe that section proximal to the thrombosis will prevent extension of the clot. Furthermore, resection is not the best way to abolish the arterioarterial vasoconstrictor reflex that may be produced by sympathetic fibers in the wall of the aorta. This can be more easily and safely abolished by periaortic stripping. The authors feel, however, that lumbar ganglionectomy alone is sufficient.

Sympathectomy for Hypertension.—Conley and Raine analyzed the results of sympathectomy on the blood pressure of 52 patients who were selected for operative intervention from a total of 210 hypertensive patients. Postoperative studies extended over one to three years. The postural and cold pressor test was considered the basal test for evaluation of results. There were three deaths (5.8 per cent): one patient died eight weeks postoperatively of coronary occlusion, and two died of malignant hypertension within a year. Satisfactory lowering of blood pressure was achieved in 33 patients (64 per cent), and response was unsatisfactory in 13 (24 per cent). Symptomatic relief, however, was obtained in a total of 88 per cent. The redistribution of blood to the splanchnic area may provide a buffer that allays the strain on the vascular bed of vital areas such as the heart and brain. Since the vast majority of hypertensive patients over 40 years of age succumb to cardiac or cerebral vascular disease, this redistribution of blood may account for the prolongation of life in patients whose blood pressure is not favorably influenced by sympathectomy. Extension of the thoracolumbar sympathectomy beyond splanchnic denervation did not produce sufficient improvement to justify the increased risk. Exceptions to this rule are perhaps the 15 per cent of patients with tachycardia and angina pectoris who may require denervation of the cardiac accelerator mechanism as well as splanchnic denervation. Patients over 45 years of age appear to be less favorably influenced by sympathectomy than younger ones. The most favorable results were obtained in patients whose hypertension began during a pregnancy or was aggravated by toxemia of pregnancy.

V 14
1951

American Heart Journal, St. Louis

40:650-783 (Nov.) 1950

Left Intraventricular Potential of Human Heart: I. Method. D. Sodi-Pallares, A. Estandia, J. Soberón and M. I. Rodríguez.—p. 650.
Id.: II. Criteria for Diagnosis of Incomplete Bundle Branch Block. D. Sodi-Pallares, A. Estandía, J. Soberón and M. I. Rodríguez.—p. 655.
Superiority of Wilson Leads and Value of Unipolar Limb and Precordial Derivations in Clinical Electrocardiography. G. R. Herrmann, M. R. Hejtmancik and J. W. Kopecky.—p. 680.
AV Limb Leads in Diagnosis of Ventricular Strain. J. A. Schack, R. H. Rosenman and L. N. Katz.—p. 696.
Water and Electrolyte Balance During Recovery from Severe Congestive Failure on 50 Milligram Sodium Diet. L. T. Iseri, A. J. Boyle and G. B. Myers.—p. 706.
Presystolic Pulsations of Liver in Absence of Tricuspid Disease. A. Grishman, I. G. Kroop, M. F. Steinberg and S. Dack.—p. 731.
Electrocardiographic Changes Associated with Patchy Myocardial Fibrosis in Absence of Confluent Myocardial Infarction: Anatomic Correlative Study. S. L. Weinberg, R. W. Reynolds, R. H. Rosenman and L. N. Katz.—p. 745.
Incidence of Rheumatic Heart Disease in Native School Children of Dade County, Florida. M. S. Saslaw, B. D. Ross and M. Dobrin.—p. 760.
Simply Prepared, Standardized, and Relatively Stable Thromboplastin Extract for Estimation of Prothrombin Time. S. Shapiro, M. Weiner, H. F. Luddecke and others.—p. 766.
Calcification of Left Atrium in Rheumatic Heart Disease. D. Young and J. B. Schwedel.—p. 771.
Mercumatilin (Cumertilin). New Mercurial Diuretic for Treatment of Congestive Heart Failure. O. A. Rose, J. Lhowe and R. C. Batterman.—p. 779.

American Journal of Clinical Pathology, Baltimore

20:1001-1098 (Nov.) 1950

*Cytologic Examination of Breast Secretions. O. Saphir.—p. 1001.
Experimental Production of "L. E." Cells. J. B. Moyer and G. S. Fisher.—p. 1011.
*Pathologic Findings in Premature Infants. J. B. Arey and J. Dent.—p. 1016.
Serum Prothrombin Time, A Composite Effect. Analysis of Factors Involved. M. Stefanini and W. H. Crosby.—p. 1026.
Efficiency of Slide Culture of Tubercle Bacilli. J. W. Berry and H. Lowry.—p. 1037.
Counting of Blood Cells by Phase Microscopy. G. Crossmon.—p. 1041.
Myocardial Lesions in Disseminated Coccidioidomycosis. I. M. Reingold.—p. 1044.

Cytology of Breast Secretions.—Saphir examined discharge from the nipple in 90 instances to see if it might be possible to diagnose and to distinguish chronic cystic mastitis, papilloma and intraductal carcinoma of the breast by cytological means. The best results were obtained with Papanicolaou's technic. Diagnosis of chronic cystic mastitis in 21 instances was made on the presence of large phagocytes with relatively few ductal epithelial cells. Diagnosis of intracystic papilloma was made principally on the basis of clumps of epithelial cells with oval or elliptical-shaped nuclei in seven instances. The individual cells showed clearcut vesicular nuclei with well outlined cytoplasm. When cells were found in groups, there was neither anachromasia nor anaplasia. The most characteristic cytological observation in 13 instances of intraductal carcinoma was the large size of the cells and their nuclei, the irregular pattern of chromatin, clumps of chromatin within the nucleus and the large nucleolus. The nuclear membranes were usually clearcut, but the cell membranes were indistinct. Anaplasia and anachromasia were often in evidence when clumps of cells were observed. Degenerate red blood corpuscles and phagocytic cells containing blood pigment granules were observed in all these conditions. Results of tests were false positive for carcinoma in two instances and false negative in three, diagnosed as papilloma in one and as chronic cystic mastitis in two. Eleven cases were considered doubtful. Four of these proved to be carcinoma, four papilloma and three chronic cystic mastitis. In 37 instances smears disclosed an occasional foam cell only and a rare epithelial cell. The importance of repeated examinations is stressed when smears are negative. Cytological examination of the discharge from the nipple seems destined to become an important adjuvant to the clinical diagnosis of certain breast lesions, but the necessity of close cooperation between the cytologist and the clinician is strongly emphasized.

Pathological Findings in Premature Infants.—Arey and Dent studied necropsy records of 84 premature infants who died within two minutes to 25 days after birth. Twenty-eight infants were previable and 56 were viable premature infants. There were 71 Negro and 13 white infants. There were 50 males and 34 females. An adequate cause of death was demonstrable in 73, while anatomic cause of death was not found in the remaining 11. Asphyxia was responsible for 20 deaths; various types of infections, especially congenital syphilis, were responsible for 10, and bronchopneumonia caused nine deaths. Intraventricular hemorrhage occurred in 11 infants and was the leading cause of death in the previable premature infants. Bronchopneumonia was often demonstrable in infants who lived only a few hours or days, and there was a significant increase in the incidence of bronchopneumonia in asphyxiated infants who lived less than 72 hours when compared with non-asphyxiated infants of comparable age. Kernicterus was demonstrated in eight infants, in seven of whom pathological observations did not justify a diagnosis of erythroblastosis fetalis. Although erythroblastosis was not definitely excluded by immunologic studies, the evidence suggests that some, if not the majority of the infants, represented examples of kernicterus occurring in nonerythroblastotic infants. Inflammatory lesions, the majority presumably resulting from infectious agents, were present in 50 per cent of the infants. The frequency of inflammatory reactions in the tissues in this early age group is emphasized.

American Journal of Medical Sciences, Philadelphia

220:477-596 (Nov.) 1950

*Study of Dietary Factors, Alcoholic Consumption and Laboratory Findings in 100 Patients with Hepatic Cirrhosis and 200 Non-Cirrhotic Controls. A. Y. Olsen.—p. 477.
Parkinsonian Tremor, Manic-Depressive Psychosis and Servomechanisms. E. Barrett.—p. 485.
Effect of Desoxycorticosterone and Ascorbic Acid on Rheumatoid Arthritis. W. E. James, R. C. Little and N. P. Shumway.—p. 490.
Studies of Palmar Sweat in Healthy Subjects and in Patients with Neurocirculatory Asthenia (Anxiety Neurosis, Neurasthenia, Effort Syndrome) with a Description of a Simple Quantitative Method. M. E. Cohen.—p. 496.
Effect of Aureomycin on Certain Liver Function Tests and Blood Coagulation. J. Galt and R. B. Hunter.—p. 508.
Spirometry as a Means for Studying Ventilatory Function of Patients in Mechanical Respirators. C. G. Grulee Jr., F. L. Eldridge and G. D. Ford.—p. 511.
Single Cell Autographs of Bone Marrow and Blood from Rats Using Radioactive Phosphorus. W. I. Morse.—p. 522.
Familial Hemochromatosis: With Comments on Adrenal Function in Hemochromatosis. W. F. Rogers Jr.—p. 530.
Clot Retraction. Its Physiological and Clinical Significance. A. J. Quick.—p. 538.
*Treatment of Potassium Retention in Anuria with Cation Exchange Resin. Preliminary Report. J. R. Elkinton, J. K. Clark, R. D. Squires and others.—p. 547.
Colloidal Iron: A Well Tolerated, Effective Oral Hematinic. A. J. Creskoff.—p. 553.
Inconclusive Results of Parathormone Treatment for Essential Thrombopenic Purpura. J. D. Battle.—p. 557.
Acute Barbiturate Poisoning: Analysis and Evaluation of Current Therapy. T. Koppanyi and J. F. Fazekas.—p. 559.
Pituitary Tumors. R. H. Morgan.—p. 577.

Diet and Alcohol Consumption in Hepatic Cirrhosis.—One hundred patients with portal cirrhosis of the liver were examined and interviewed by Olsen as to alcoholic habits and daily intake of the essential foods. Seventy-eight were heavy drinkers, while 14 drank moderately. The commonest dietary deficiencies in 45 patients were in a combination of protein and vitamin B complex foodstuffs, while 15 patients were deficient in B complex only. Thus, 60 patients had a B complex deficiency. This figure is probably low, as no history was obtained from 13 patients. Of 100 noncirrhotic patients of similar age groups from private practice, there were 24 occasional or moderate drinkers. Of 100 noncirrhotic hospital patients, alcohol consumption was heavy in five and moderate in 41. There was a combination of protein and vitamin B complex deficiency in the noncirrhotic group of only 5 per cent and 6 per cent respectively, as compared with 45 per cent in the cirrhotic group. The data substantiate both experimental and clinical evidence that portal cirrhosis has as its basis a multiple nutritional deficiency, chiefly of protein and the B complex foodstuffs, and that alcohol is probably a significant indirect causative factor in that it causes faulty dietary habits. Prognosis may be improved by a diet rich in protein and vitamin B complex.

Cation Exchange Resin for Potassium Retention in Anuria.—Elkinton and co-workers administered a carboxylic ammonia exchange resin orally or rectally to three oliguric or anuric patients with chronic or acute renal insufficiency in whom hyperpotassemia was developing. The enteral administration of the cation exchange resin apparently mitigated the accumulation of potassium in extracellular fluid and the rise in serum concentration. This method of control of the complication of hyperpotassemia should greatly facilitate the ordinary medical treatment of anuria. When the resin is not tolerated in the upper gastrointestinal tract, it may be given as an enema, and significant amounts of potassium ion may be removed by this route.

American Journal of Physiology, Baltimore

163:213-468 (Nov.) 1950. **Partial Index**

Electrotonic Potentials Elicited by Threshold Stimuli from Sheath-Free Nerve at Different Temperatures. G. M. Schoepfle.—p. 229.
Ion Binding in Muscle Homogenates. H. B. Steinbach.—p. 236.
Effect of Iodoacetate of Changes in Muscular Latency Induced by Activity. A. Sandow and A. G. Karczmar.—p. 247.
Cardiac Output in Rat at Normal and at High Altitudes and its Relationship to Gas Embolism. F. R. Blood, D. L. Smith and F. E. D'Amour.—p. 268.
Excitability of Mammalian Ventricle Throughout Cardiac Cycle. O. Orias, C. M. Brooks, E. E. Suckling and others.—p. 272.
Formation of Bradykinin in Anaphylactic and Peptone Shock. W. T. Beraldo.—p. 283.
Pressor Pathways Not Blocked by Tetraethylammonium. W. A. Freyburger, C. C. Gruhzit and G. K. Moe.—p. 290.
Pregnancy Test Utilizing Frogs and Toads. W. Chu.—p. 294.
Survival on Circulation of Growth and Adrenocorticotropic Hormones as Evidenced by Parabiosis. D. C. Van Dyke, M. E. Simpson, Choh Hao Li and H. M. Evans.—p. 297.
Anti-Insulin and Diabetogenic Actions of Purified Anterior Pituitary Growth Hormone. R. C. De Bodo, M. Kurtz, A. Ancowitz and S. P. Kiang.—p. 310.
Action of Cortisone on Cardiovascular-Renal Effects of Desoxycorticosterone Acetate. S. M. Friedman, C. L. Friedman and M. Nakashima.—p. 319.
Influence of Fat in Diet upon Nitrogen Balance and Liver Regeneration. C. S. Rogers, C. C. Ferguson, C. E. Friedgood and H. M. Vars.—p. 347.
Toxicity of Sea Water in Mammals. C. B. Albrecht.—p. 370.
Role of Urease in Gastric Mucosa. D. Glick, E. Zak and R. Von Korff.—p. 386.
Chemical Agents Influencing Survival to "Explosive" Anoxia. F. W. Stemler, J. E. Wiebers and W. A. Hiestand.—p. 400.
Effect of Feeding an "Animal Protein Factor" Concentrate to Young Lambs. R. W. Colby, F. A. Rau and J. R. Couch.—p. 418.
Effect of Renal Arterial Constriction on Excretion of Sodium and Water. W. D. Blake, R. Wégria, H. P. Ward and C. W. Frank.—p. 422.
Reabsorption of Bromide by Kidney. R. L. Wolf and G. S Eadie.—p. 436.

American Review of Tuberculosis, New York

62:455-562 (Nov.) 1950

*BCG Vaccination in Silicosis. A. J. Vorwald, M. Dworski, P. C. Pratt and A. B. Delahant.—p. 455.
Antibacterial Substances in Seed Plants Active Against Tubercle Bacilli. R. Y. Gottshall, J. C. Jennings, L. E. Weller and others.—p. 475.
Isolation of Tubercle Bacilli from Feces and Gastric Contents of Intravenously Infected Mice. W. F. Kirchheimer, A. R. Hess, E. H. Williston and G. P. Youmans.—p. 481.
Comparison of Two Solid Media for Testing Sensitivity to Streptomycin. J. H. Robinson, M. M. Cummings and R. A. Patnode.—p. 484.
Cancer Detected in Surveys. R. H. Overholt.—p. 491.
Mass Surveys as Case-Finding Techniques for Pulmonary Neoplasms. K. R. Boucot.—p. 501.
Asymptomatic and Circumscribed Lesions of Chest. W. F. Bugden.—p. 512.
Tuberculin Testing of Midshipmen and Recruits of Navy and Marine Corps. R. O. Canada and R. W. Babione.—p. 518.
Effect of Antihistaminics on Tuberculin Skin Reaction. D. Hunter, L. Hyde and J. D. Davis.—p. 525.
Mental Aspects of Tuberculosis: Observations Based on Veterans Hospital Study. G. E. Daniels and E. Davidoff.—p. 532.
Influence of External Factors on Pulmonary Tuberculosis. A. C. Cohen.—p. 539.

BCG Vaccination in Silicosis.—The inhalation of crystalline-free silica decreases resistance to pulmonary tuberculosis. Approximately 65 per cent of silicotics on whom autopsy is performed show evidence of active tuberculosis, whereas only 15 per cent of industrial workers without silicosis but exposed to nonsilicious dust have tuberculous disease. It seemed possible that the high incidence might be lowered by BCG vaccination of tuberculin-negative persons exposed to an unavoidable silica hazard. Before clinical application of such vaccination, and in view of the known effect of silica on infection produced by the attenuated strain R_1 of human type tubercle bacillus, it was necessary first to observe the course of infection with the BCG organisms in animals inhaling silica. The authors' experiments demonstrated the following points: 1. BCG organisms spread from an intracutaneous site of inoculation in guinea pigs and may localize in the viscera, including the lung and tracheobronchial lymph nodes. 2. The resistance of the host can be lowered by the tissue reaction to quartz particles, so that the BCG organisms in the dose used for vaccination or for infection by inhalation can produce progressive and fatal pulmonary disease. 3. BCG organisms recovered from tissue exhibiting progressive disease have not been altered by growth in silicotic tissue. 4. Vaccination with BCG organisms does not prevent or retard the development of tuberculosilicosis produced by an infection with the attentuated R_1 strain of the human type tubercle bacillus in the presence of inhaled quartz dust.

Annals of Internal Medicine, Lancaster, Pa.

33:1081-1340 (Nov.) 1950

Effects of Adrenocorticotropic Hormone in Pneumonia: Clinical, Bacteriological and Serological Studies. E. H. Kass, S. H. Ingbar and M. Finland.—p. 1081.
Clinical Appraisal of Neomycin. B. A. Waisbren and W. W. Spink.—p. 1099.
Involvement of Nervous System in Infectious Mononucleosis. T. C. Bernstein and H. G. Wolff.—p. 1120.
*Cation Exchange Resins in Treatment of Congestive Heart Failure. S. H. Hay and J. E. Wood Jr.—p. 1139.
Patterns of Pulmonary Fibrosis as Related to Pulmonary Function. D. M. Spain.—p. 1150.
*Cytology of Sputum and Bronchial Secretions: Studies on 588 Patients with Miscellaneous Pulmonary Lesions. L. B. Woolner and J. R. McDonald.—p. 1164.
Criteria for and Interpretation of Normal Glucose Tolerance Tests. H. O. Mosenthal and E. Barry.—p. 1175.
Association of Laennec's Cirrhosis with Diabetes Mellitus. M. H. Reinberg and M. Lipson.—p. 1195.
*Liver Biopsy: Analysis of Pathological Findings in 75 Cases. J. Hoffman and J. Rosenthal.—p. 1203.
Clinical Experiences with New Mercurial Diuretic for Subcutaneous Administration. J. B. Vander Veer, P. T. Kuo and D. S. Marshall II.—p. 1215.
Studies Relative to Chemotherapy of Bacterial Endocarditis. M. H. Nathanson and R. A. Liebhold.—p. 1224.
Effects of Various Physical Procedures on Circulation in Human Limbs. R. W. Wilkins, M. H. Halperin and J. Litter.—p. 1232.
Changing Nature of Pneumonia. H. A. Reimann.—p. 1246.
Inheritance of Spondylitis Rhizomelique (Ankylosing Spondylitis) in the K. Family. H. H. Riecker, J. V. Neel and A. Test.—p. 1254.

Cation Exchange Resins in Congestive Heart Failure.—Hay and Wood studied the effect of ammonium and potassium carboxylate cation exchange resins on the sodium and potassium serum levels and on the urinary excretion of sodium and potassium in 10 patients. Three patients had congestive heart failure, two had no evidence of congestion or edema, three had cirrhosis of the liver, one constrictive pericarditis and one chronic glomerulonephritis. The average dosage of the cation exchange resins was 45 mg. per day, given with meals in divided doses. The ammonium cation resin reduced both sodium and potassium excretion in the urine. The consequent reduction of sodium absorption from the intestine proved effective in the management of congestive heart failure and in certain instances of cirrhosis of the liver with ascites. Hypopotassemia originally observed following the ammonium cation resin did not occur when various amounts of a potassium salt of the resin were mixed with the ammonium form (ammonium-potassium cation resin). The resultant ammonium chloride absorption following administration of these resins and the interference with base absorption led to mild to moderate acidosis. Effective plasma chloride levels were maintained and mercurial diuresis was potentiated. This effect of ammonium chloride suggests care in administration of the resins to patients with renal insufficiency and intermittent use of the resin in all cases. No unfavorable symptoms or signs followed the use of the ammonium-potassium cation resin. The low salt syndrome did not occur in this study. Following ammonium cation resin therapy, increased digitalis toxicity may have occurred in one case as a result of hypopotassemia.

V 14
1951

Cytology of Sputum and Bronchial Secretions.—Woolner and McDonald made routine cytological examination of sputum or bronchial secretions in 588 patients with miscellaneous chest diseases. Proved or strongly suspected bronchogenic carcinoma of 147 patients was affirmed in 100 (68 per cent) by cytological examination of sputum or bronchial secretions. As far as is known, no diagnosis was made from false positive results in this series. Three sputums should be studied in a given case before one considers that an adequate cytological examination has been carried out. Of the 147 patients with bronchogenic carcinoma, 93 submitted to bronchoscopic examination. Results of biopsy were positive in 38 of these (41 per cent). Results of cytological studies on these 93 patients were positive in 65 (70 per cent). Chest roentgenograms suggested pulmonary tuberculosis in five patients. No tubercle bacilli could be demonstrated by smear, culture or animal inoculation. Cancer cells in the sputum provided convincing evidence that the lesions in question were neoplastic. In such cases, as with all indeterminate lesions of the chest, cytological examination of the sputum or bronchial secretions for malignant cells is important as part of routine investigation of a patient. Pancoast's tumors are inaccessible to bronchoscopic biopsy, but examination of sputum or bronchial secretions yielded positive results in five of eight cases in which Pancoast's tumor was diagnosed. Seven diagnoses of so-called alveolar-cell carcinoma were made by cytological examination of sputum or bronchial secretion.

Liver Biopsy.—Hoffman and Rosenthal performed liver biopsies on 75 patients with abnormalities of the liver. Thirty biopsies were performed in the course of various abdominal operations or as independent surgical procedures. Two were peritoneoscopic and 43 were needle biopsies. Of the 30 surgical biopsies, 24 (80 per cent) were confirmed either by clinical observation or by necropsy. Of 43 needle biopsies, 34 (79 per cent) were confirmed by similar criteria. One of two peritoneoscopic biopsies was confirmed by necropsy. Six surgical biopsies were unconfirmed and one disagreed with clinicopathological observations. Five needle biopsies were inadequate, one was unconfirmed and two disagreed with clinical observations. Liver biopsy has a definite place in study of the evolution of the severer type of liver disease. Although a positive pathological observation is more important than a negative one, the latter may at times be very valuable. Needle biopsy has gradually supplanted surgical biopsy of liver because of its simplicity. It is an aid in diagnosis, and results are often as definite as with surgical biopsy. The surgical biopsy is to be preferred for some technical reasons, as during the course of an exploratory abdominal operation or when a large amount of tissue is desired for diagnosis. The liver biopsy may also prove helpful in evaluation of the course of liver disease and the effect of therapy. The needle biopsy involves a small but definite risk and should be done only by those well trained in its performance.

Annals of Otol., Rhin. and Laryngology, St. Louis

59:591-886 (Sept.) 1950. **Partial Index**

Basilar Skull Fractures. D. P. Cordray.—p. 591.
*Risk of Poliomyelitis After Tonsillectomy. G. W. Anderson, G. Anderson, A. E. Skaar and F. Sandler.—p. 602.
Multiple Primary Malignant Tumors: Report of Three Cases Encountered on Otolaryngological Service. A. F. Judge.—p. 614.
Effects of Dramamine upon Cochlear Function and Vestibular Responses to Turning in Normal Subjects. J. Winston, A. Rubin, J. S. Lewis and J. M. Rehberger.—p. 622.
Malignant Melanoma of External Ear: Report of 36 Cases Treated Between 1928 and 1944. B. Sylvén and C. A. Hamberger.—p. 631.
Tonsil After Radium Irradiation. E. J. Van Eycken.—p. 648.
Further Investigations on Physiology of Labyrinthine Fluids. F. Altmann and J. G. Waltner.—p. 657.
Esophageal Speech. H. Martin.—p. 687.
Production of Negative Pressures by Respiratory Cilia. J. J. Ballenger.—p. 694.
Nasal Septal Hemangiomas: Report of Nine Cases. M. Lineback.—p. 699.

Poliomyelitis After Tonsillectomy.—Of 2,709 cases of poliomyelitis which occurred in Minnesota in 1946, 21 appeared within one month following tonsillectomy and 18 more appeared within two to three months following tonsillectomy. Twelve of the first group and four of the second group had bulbar involvement. The occurrence of bulbar cases after tonsillectomy was concentrated within the usual range of incubation periods for poliomyelitis. Comparison of poliomyelitis attack rates and of bulbar cases among children of the same age showed that the risk of developing poliomyelitis was at least three times as great among those having undergone tonsillectomy as among those not having had this operation and the risk of bulbar infection was 11 times as great. Although the number of cases is small, these data are statistically significant and suggest that tonsillectomy may increase the risk of infection with recognizable poliomyelitis and may be a factor determining a bulbar response if infection is developing.

Blood, New York

5:983-1082 (Nov.) 1950

Iron Metabolism: Pathophysiology of Iron Storage. C. A. Finch, M. Hegsted, T. D. Kinney and others.—p. 983.
Intestinal Content in Pernicious Anemia of Factors for Growth of Streptococcus Faecalis and Lactobacillus Leichmannii. R. H. Girdwood.—p. 1009.
Electrical Conductivity of Blood: I. Relationship to Erythrocyte Concentration. F. G. Hirsch, E. C. Texter Jr., L. A. Wood and others.—p. 1017.
Id.: II. Relation to Red Cell Count. E. C. Texter Jr., F. G. Hirsch, F. E. Horan and others.—p. 1036.
Additional Evidence for Anti-d: Statistical Studies. J. M. Hill, S. Haberman, R. Guy and J. W. Davenport Jr.—p. 1049.
Guanazolo in Therapy of Hodgkin's Disease. B. Straus, S. Berson, T. Bernstein and A. S. Jacobson.—p. 1059.
Hemolysis with Alloxan and Alloxan-Like Compounds, and Protective Action of Tocopherol. C. S. Rose and P. György.—p. 1062.

California Medicine, San Francisco

73:379-462 (Nov.) 1950

The Common Cold—Fact and Fancy. E. Jawetz and J. C. Talbot.—p. 379.
Intestinal Obstruction. W. H. Cole.—p. 384.

POLIOMYELITIS—A PANEL DISCUSSION

Virology of Poliomyelitis. C. F. Pait.—p. 391.
Diagnostic Problems in Poliomyelitis and How They Are Met. A. G. Bower.—p. 394.
Treatment of Poliomyelitis with Involvement of Respiratory System. H. E. West.—p. 397.
Alterations in Serum Protein Levels in Acute Human Poliomyelitis: Rationale for Therapy. J. S. Chudnoff.—p. 401.
Biochemical Alterations in Acute Human Poliomyelitis: Electrolyte Patterns and Trends. A. G. Bower, J. S. Chudnoff and A. L. Chaney.—p. 406.

Antihistaminic Drugs in Dermatology. P. D. Foster.—p. 413.
Asthma in Children—Problems in Diagnosis. C. L. Mauser.—p. 421.
Anticoagulant Therapy in Heart Disease: Summary of Literature. C. D. Marple.—p. 425.
Non-Directive Psychotherapy. L. F. Smith.—p. 432.

Canadian Medical Association Journal, Montreal

63:427-532 (Nov.) 1950

Some Social and Economic Aspects of Drug Addiction. K. C. Hossick.—p. 427.
Some Recent Changes in Clinical Neurology. J. C. Richardson.—p. 432.
Practising Physician in Control of Syphilis. B. D. B. Layton.—p. 436.
Management of Depressions. M. Straker.—p. 441.
Metabolic Disintegrations. J. Beattie.—p. 446.
Transurethral Ureterolithotomy. M. Ratner and C. Schneiderman.—p. 453.
What the General Practitioner and the Industrial Physician Should Know Regarding Problems of Retirement. R. B. Robson.—p. 457.
Influence of Perturbations of Childhood Life upon Occurrence of Appendectomy. G. Binning.—p. 461.
Pneumothorax and Interstitial Emphysema in Asthma. H. S. Mitchell and H. L. Bacal.—p. 467.
Mitral Occlusion Due to Mass Thrombus of Left Auricle. R. W. Gunton and G. W. Manning.—p. 470.
Peptidases in Cerebrospinal Fluid. K. Stern, A. M. Cullen, V. T. Barber and R. Richer.—p. 473.
Sarcoid-Like Eruption Following Vitamin D Therapy for Arthritis. J. Grandbois and E. Gaumond.—p. 475.
Lupus Erythematosus: Effect of Cortisone on "L. E." Phenomenon in Lupus Erythematosus. G. R. Macdonald and N. W. Simmons.—p. 477.
Leptospirosis Icterohaemorrhagica or Weil's Disease. E. A. S. Reid and R. W. Reed.—p. 479.
Immobilization of Treponema Pallidum in Vitro by Specific Antibody Produced in Syphilis and Complement. J. Archambault.—p. 483.
Acute Abdominal Pain and Shock Associated with Haemochromatosis. S. McClatchie, H. E. Taylor and A. T. Henry.—p. 485.
Neurofibrosarcoma of Ovary, Associated with Neurofibromatosis. H. Dover.—p. 488.

Cincinnati Journal of Medicine

31:353-358 (Nov.) 1950

*Allergy to Drugs. W. B. Sherman.—p. 353.

Allergy to Drugs.—According to Sherman, almost all the common allergic symptoms—anaphylactic shock, asthma, rhinitis, urticaria and contact dermatitis—may occur as manifestations of drug allergy. In addition, there are many symptoms that are frequent manifestations of drug sensitization but that are rare or unknown in allergy to foods or inhalants. Among these may be mentioned fever, morbilliform and scarlatiniform rashes, erythema nodosum, arthralgia, hepatitis, agranulocytosis and thrombocytopenia. Drug sensitization is of long duration or essentially permanent. In many cases of acetylsalicylic acid (aspirin) and arsphenamine allergy the sensitization has lasted for 10 to 15 years or more. In the case of sulfonamides, sensitivity lasting two or three years is not unusual. Mild reactions to penicillin are frequently ignored and subside despite continued therapy. Sensitization to penicillin is transitory in many cases. In the management of drug reactions, discontinuance of the causative agent is sufficient in most cases. The severer cases require suitable symptomatic treatment, such as epinephrine and aminophylline for asthma and antihistaminics for urticaria and angioedema. Pituitary adrenocorticotropic hormone and cortisone have been tried in a few cases and were found effective. Measures to hasten excretion of the allergenic drug, such as administration of BAL, in reactions to arsenic and gold compounds, are valuable. Further use of the same drug after the patient has recovered from even a minor drug reaction exposes him to danger of more serious manifestations of sensitization. The substitution of a closely related drug may not avoid a reaction. The only drug that can be used again after a previous reaction, with a reasonable expectation that the sensitization will have disappeared, is penicillin. In general, the best procedure is substitution of a clinically unrelated drug of similar action. With recent advances in pharmacology and antibiotic therapy, this is rarely a difficult problem.

Gastroenterology, Baltimore

16:531-634 (Nov.) 1950

*Benign Gastric Polyps and Their Relation to Carcinoma of Stomach. R. V. Edwards and C. H. Brown.—p. 531.
Surgical Aspects of Meckel Diverticulum. Report of 64 Operative and 11 Autopsy Cases. F. B. Wagner Jr., T. A. Shallow and S. A. Eger.—p. 539.
Early Roentgenologic Evaluation in Patients with Upper Gastrointestinal Hemorrhage: Report of 58 Cases. R. A. Elmer, A. A. Rousuck and J. M. Ryan.—p. 552.
*Ulcerative Colitis: Study of 173 Cases. J. W. Paulley.—p. 566.
Effect of Protein Hydrolysate Solutions on Gastric Acidity of Peptic Ulcer Patients. D. C. H. Sun and T. E. Machella.—p. 577.
Effect of Aureomycin on Stomach: Gastroscopic Study. C. S. Lewis Jr., T. C. Bauerlein and H. M. Shytles Jr.—p. 586.

Gastric Polyps and Carcinoma of Stomach.—There is much disagreement in the literature concerning malignant degeneration in benign gastric polyps. Edwards and Brown have observed 32 patients with gastric polyps at the Cleveland clinic in the past 10 years. Seventeen had adenomatous polyps; 10 had connective tissue polyps, and five had carcinoma associated with benign gastric polyps. In two of the patients in the last group, the carcinoma was still in situ in a benign polyp; in one patient there was early invasion adjacent to typical adenomatous glands. Two gastric carcinomas developed in a sixth patient eight years after excision of a benign polyp. These cases indicate that malignant degeneration does occur in benign gastric polyps. The majority of gastric polyps are asymptomatic or are associated with vague, nondescript epigastric distress. A few patients may have obstructive symptoms. Upper gastrointestinal bleeding frequently accompanies connective tissue tumors. Hypochromic anemia is generally, and pernicious anemia may be, associated with benign gastric polyps. Achlorhydria is also commonly observed. The diagnosis depends on both roentgenologic and gastroscopic examinations, the one supplementing the other. Until more adequate follow-up studies are reported of benign gastric polyps that were not removed and did not subsequently become malignant during a period of at least 20 years, the authors believe that all benign gastric polyps should be surgically excised because of the possibility of malignant degeneration.

Ulcerative Colitis.—Paulley studied 173 patients with ulcerative colitis. There were twice as many women as men. Results of investigations for allergy, deficiency factors, septic foci, primary dysenteric infection and for specific streptococci were all negative. An investigation of the role of psychological factors was made. Each patient's background was thoroughly studied, including his reactions to stress, environment, work, parents and others in the family circle. Results suggest that the disease is associated with a well defined personality type occurring in those with overpossessive mothers (or mother substitutes) and weak or excessively stern fathers. Characteristic personality traits were observed in every one of the last 100 patients seen, except one, and this patient was never interviewed privately. In a control group of 98 patients from the department of radiotherapy, a similar personality was observed in only five instances. A high rate of family incidence of colitis (11 per cent) was recorded. Early parental death was not frequent in colitis; in duodenal ulcer, early death of mothers occurred often. It is possible that an overindulgent living mother predisposes one to colitis, whereas a prematurely dead mother, among other factors, predisposes one to duodenal ulcer. The incidence of colitis among Jews was twice the anticipated rate. Simple psychotherapy for patients with colitis is within the scope of the general practitioner and is most often successful in young men. It has been customary to give a low residue diet in colitis, but in the author's experience patients on a full diet are not harmed in any way. Sulfonamides and antibiotics are recommended with a view to reduction of secondary infection in the mucosal erosions, but they do not appear to influence the relapse rate. Surgery should be performed only when medical treatment has failed. Studies of personality traits in persons with regional ileitis (Crohn's disease), celiac disease (idiopathic steatorrhea) and chronic relapsing amebiasis showed a close relation to those found in colitis and duodenal ulcer.

Indiana State Medical Assn. Journal, Indianapolis

43:1065-1176 (Nov.) 1950

Anuria Resulting from Sulfonamide Therapy. F. B. Adney and J. I. Waller.—p. 1085.
Seborrheic Dermatitis. D. E. Kelly and T. D. Arlook.—p. 1088.
Axillary Metastasis as First Sign of Malignancy of Breast. J. A. McClintock.—p. 1092.
Pentothal Sodium in Urological Procedures: Report of 1,000 Cases. W. L. Wissman and W. B. Sigmund.—p. 1093.
Acrodynia Following Use of Bichloride of Mercury Diaper Rinse: Report of Two Cases. G. E. McCoy.—p. 1095.

Industrial Medicine and Surgery, Chicago

19:503-548 (Nov.) 1950

CARDIOLOGY
Routine Electrocardiography in Industry. B. M. Overholt.—p. 503.
Coronary Heart Disease and the Employee. A. J. Geiger.—p. 509.
Acute Coronary Artery Disease, and Effort. A. M. Master.—p. 512.
Rheumatic Heart Disease and Employment. B. R. Harris.—p. 513.
Occlusive Disease of Arteries. H. Montgomery.—p. 517.
Treatment of Causalgia and Allied Disorders in Employed Persons. B. B. Whitcomb.—p. 519.
Placement of Employee with Cardiac and Vascular Disease in Industry. C. Pharris.—p. 523.
Psychological Considerations in Rehabilitation of Cardiac Patient in Industry. E. Stainbrook.—p. 528.
Management of the Employee with Hypertensive Cardiovascular Disease. J. C. Leonard.—p. 532.
*Toxicological and Metabolic Effects of Fluorine-Containing Compounds. J. Larner.—p. 535.

Effects of Fluorine Compounds.—In the past, the toxicity hazard of fluorine compounds has been encountered in the smelting of cryolite and in the use of fluorides as insect sprays, roach powders and rodenticides. Since the war, fluorine compounds have found wide industrial use in products such as dyes, plastics, pharmaceuticals, tanning agents, metal fluxes, fumigants, insecticides, fungicides, germicides, fire extinguishers, solvents, fireproofing compounds and heat transfer media. Hydrofluoric and hydrofluosilicic acids and their more soluble salts cause necrosis and ulceration with subsequent sloughing and slowly healing yellowish ulcers when they come in contact with the

V 14
1951

skin. Ocular effects include ulceration of the conjunctivas, light sensitivity and continuous conjunctival secretion. These local effects are best treated by copious lavage and ointments containing metallic oxides, such as magnesium oxide, which combine with fluorides. Local injections of calcium gluconate are also helpful in prevention of spread and absorption. Inhalation of gaseous hydrofluoric acid or fluorine causes bronchial irritation, with much mucous secretion, bronchial constriction and pulmonary edema. Oral poisoning results in symptoms referable primarily to the gastrointestinal tract and central nervous system. Chronic intoxications resulting from prolonged intake of smaller amounts of fluorides include dental fluorosis, which has been described as an endogenous condition in regions where the drinking water has an abnormally high fluoride content. Fluorine also tends to accumulate in bones, leading to hypercalcification and brittleness. Ligaments and tendons also become calcified. Serious symptoms may ensue, such as loss of mobility of joints, easy fracture and pressure on spinal cord. Other effects include alopecia in young men, accompanied by increased fluoride concentrations in hair and nails, anemia and decreased blood clotting power due to the binding of calcium. Dysmenorrhea, alterations in growth and weight, lowered birth rate, high incidence of fractures, thyroid alterations and liver damage have been observed in regions of endemic fluorosis. The author cites several new extremely toxic organic fluorides and the mechanism of action that produces the intoxication.

Journal of Experimental Medicine, New York

92:383-506 (Nov.) 1950. **Partial Index**

Effect of Removal of Lipids on Specific Precipitation. R. C. Krueger and M. Heidelberger.—p. 383.

Experimental Congenital Toxoplasmosis. D. Cowen and A. Wolf. —p. 393.

Relation of Pleuropneumonia-like Organisms to Conjunctival Changes Occurring in Mice of Princeton Strain. J. B. Nelson.—p. 431.

Persistent Antigenic Variation of Influenza A Viruses After Incomplete Neutralization in Ovo with Heterologous Immune Serum. I. Archetti and F. L. Horsfall Jr.—p. 441.

Immunological Reactions of Coxsackie Viruses. J. L. Melnick and N. Ledinko.—p. 463.

Journal of Gerontology, Springfield, Ill.

5:301-420 (Oct.) 1950

Studies of Adrenal Cortical and Anterior Pituitary Function in Elderly Men. D. H. Solomon and N. W. Shock.—p. 302.

*Atheromatosis as Sequel to Senescent Changes in Arterial Wall. A. I. Lansing, M. Alex and T. B. Rosenthal.—p. 314.

Cytochemical Studies of Age Pigments in Human Heart. E. P. Jayne. —p. 319.

Vitamin Studies in Middle-Aged and Old Individuals: V. Hypovitaminemia B_1. Effect of Thiamine Administration on Blood Thiamine Concentration and Clinical Signs and Symptoms. M. Chieffi and J. E. Kirk.—p. 326.

Investigations of Actual Food Intake of Elderly Chronically Hospitalized Patients. N. Vinther-Paulsen.—p. 331.

Adaptation in Phantom Limb Phenomenon as Influenced by Age of Amputees. E. Jalavisto.—p. 339.

Connective Tissue Fine Structure and Some Methods for Its Analysis. J. Gross.—p. 343.

Studies of Psychopathology in Later Maturity—Review. S. Granick. —p. 361.

Nonresident Aid-Community Versus Institutional Care for Older People. R. Laverty.—p. 370.

Atheromatosis and Aging of Arterial Wall.—Lansing and co-workers undertook quantitative chemical analyses for calcium and cholesterol on atheroma-free segments of the upper abdominal portions of 14 human aortas that were obtained at necropsy and possessed an over-all minimum of atheromas. Both the adventitia and intima were stripped from the media. In addition to normal tissue, the authors collected fibrous, fatty and grossly necrotic ulcerated plaques from approximately 30 aortas of persons between the ages of 30 and 59. This material was also subjected to analysis for calcium and cholesterol. Results suggested that arteriosclerosis is a dual process involving primarily an aging of the arterial wall in addition to the formation of atheromas. Calcification of senescent elastic tissue in the media (elastocalcinosis) occurs with or without atheromatosis. When the two coexist, analyses indicate that cholesterol accumulates in the intimal plaque after the subjacent media has undergone elastocalcinosis.

Journal of Immunology, Baltimore

65:355-442 (Oct.) 1950

Complement Fixation and Weil-Felix Reaction in Rabbits Inoculated with Bartonella Bacilliformis. J. D. Reese, M. E. Morrison and E. M. Fowler.—p. 355.

Cellular Changes in Rabbits During Antibody Formation: II. Multiple Antigen Injections. C. McNeil.—p. 359.

Neutralization and Hemagglutination Inhibition of Swine Influenza Virus by Serum from Suckling Swine and by Milk from Their Dams. G. A. Young Jr. and N. R. Underdahl.—p. 369.

Group Phase of Shigella Paradysenteriae Type W: Its Isolation from Man. R. P. Elrod, K. Okable, A. C. Sanders and R. L. Hullinghorst.—p. 375.

Studies on Antigens of Human Red Cells: I. Separation from Human Erythrocytes of Water Soluble Fraction Containing the Rh, A and B Factors. M. Moskowitz, W. B. Dandliker, M. Calvin and R. S. Evans.—p. 383.

Separation of Protective Antigen from Toxin-Producing Strain of Hemophilus Pertussis. K. C. Robbins and L. Pillemer.—p. 393.

Antigenicity of Shigella Sonnei. S. E. Branham and S. A. Carlin. —p. 407.

Comparison of Seven Antibiotics Against Hemophilus Pertussis Infection in Chick Embryos. G. G. Jackson, M. W. Barnes and M. Finland. —p. 419.

Studies on Tularemia: V. Immunization of Man. P. J. Kadull, H. R. Reames, L. L. Coriell and L. Foshay.—p. 425.

Immunology and Preservation of Norm. T. Francis Jr.—p. 437.

Journal of Investigative Dermatology, Baltimore

15:343-396 (Nov.) 1950

Comparison of Inhibitory Effect of Castellani's Paint and of Gentian Violet Solution on in Vitro Growth of Candida Albicans. K. Riley and A. H. Flower Jr.—p. 355.

Effects of Estrogen Administration upon Epidermal Proliferation. C. B. Dunaif and J. C. Finerty.—p. 363.

Procaine Penicillin Administered Orally: Comparison with Sodium Penicillin. W. P. Boger and J. O. Beatty.—p. 373.

Use of Testosterone in Elderly Women: Preliminary Report. B. B. Wells, R. D. Lowrey and E. P. Cope.—p. 381.

Experimental Study of Antibiotics for Their Activity in Shwartzman Phenomenon. G. P. Kerby and J. C. Muller.—p. 385.

Percutaneous Absorption of Sodium in Cases of Exfoliative Dermatitis. J. A. Elliott Jr. and H. M. Odel.—p. 389.

Journal of Thoracic Surgery, St. Louis

20:671-834 (Nov.) 1950

Congenital Atresia of Esophagus with Tracheoesophageal Fistula. W. J. Potts.—p. 671.

Congenital Atresia of Esophagus: Antethoracic Placement of Stomach Followed by Intrathoracic Transplantation. W. J. Potts.—p. 681.

Reconstruction of Esophagus. R. Robertson and T. R. Sarjeant.—p. 689.

Use of Burns Valve as Simple Respirator for Intrathoracic Surgery in Dog. J. H. Dameron and D. G. Greene.—p. 706.

Development of, and Certain Clinical Applications for, Portable Mass Spectrometer. F. A. Miller, A. Heimingway, A. O. Nier and others. —p. 714.

Surgical Treatment of Giant Emphysematous Blebs and Pulmonary Tension Cysts. D. J. Dugan and P. C. Samson.—p. 729.

Treatment of Giant Cysts of Lung. F. F. Allbritten and J. Y. Templeton. —p. 749.

Experimental Tuberculosis: Effects of Ligation of Pulmonary Arteries on Tuberculosis in Monkeys. H. W. Scott Jr., C. R. Hanlon and B. J. Olson.

Pulmonary Function Before and After Extrapleural Pneumothorax: Comparison with Other Forms of Collapse and Resection. E. A. Gaensler and J. W. Strieder.—p. 774.

Pulmonary Tuberculomas: Pathogenesis, Diagnosis, and Management. G. J. Culver, J. P. Concannon and J. E. MacManus.—p. 798.

*Healing of Surgical Wounds of Lung with Particular Reference to Segmental Lobectomy. C. W. Findlay Jr.—p. 823.

Healing of Lung Wounds After Segmental Lobectomy.—Earlier reports on the resection of segments of pulmonary lobes emphasized closure of the remaining lung defect, usually by a continuous suture. More recently, it has been recommended that the raw pulmonary surface be left unsutured, because it is believed that less distortion of the parenchyma results and that better pulmonary function is maintained. Postoperative morbidity has been higher with segmental resections than after total lobectomies; more complications have occurred regardless of the manner in which the raw surface of the remaining lobar segment was treated. Findlay describes experimental studies on cats made to determine the sequence of events in the healing of a parenchymal wound of the lung. It was found that a precise anatomic resection of a pulmonary lobar segment produces a wound in the lung that heals perfectly. A mature surface scar develops in four weeks, with minimal distortion of the parenchyma. If lung tissue of the remaining

segment is damaged during operative dissection or if sutures are taken, local fibrosis and distortion results. Occlusion of the bronchus or pulmonary artery to the wounded segment also alters healing. After resection of an anatomic segment of a lobe, it is unnecessary and probably unwise to pleuralize the surface of the lung wound. It is suggested that an alternative procedure be substituted for segmental lobar resection if the operator cannot dissect easily in the intersegmental plane. Many postoperative complications of segmental excision are probably related to undue trauma and residual disease at the line of resection.

Kansas Medical Society Journal, Topeka

51:457-508 (Oct.) 1950

Recent Experiences with Gastric Malignancies. K. C. Sayer and H. P. Marvin.—p. 457.
Multiple Unipolar ("V") Precordial Leads. D. R. Bedford.—p. 462.
Castration and Sex Crimes. C. C. Hawke.—p. 470.

Nebraska State Medical Journal, Lincoln

35:337-368 (Nov.) 1950

Dietetic Education of the Diabetic. W. H. Olmsted.—p. 339.
Management of Rural Diabetic. O. A. Kostal.—p. 345.
Treatment of Diabetic Coma. F. Rogers.—p. 349.
Juvenile Diabetes. D. Brigham.—p. 351.
Bladder Tumor: Advances in Surgical Treatment with Particular Reference to Bilateral Ureterosigmoidostomy and Total Cystectomy. L. W. Lee.—p. 354.
Management of Premature Labor. D. C. Vroman.—p. 355.

New England Journal of Medicine, Boston

243:681-722 (Nov. 2) 1950

Simulation of Cardiac Disease by Adrenocortical Failure in Infants. L. H. Kyle and C. Q. Knop.—p. 681.
Rehabilitation of the Hemiplegic Patient. H. A. Rusk.—p. 690.
*Effect of ACTH on Induced Fever. E. H. Kass and M. Finland.—p. 693.
Suggestions for First-Aid Treatment of Casualties from Atomic Bombing. R. Warren and J. H. Jackson.—p. 696.
Deafness. D. K. Lewis.—p. 699.

Effect of ACTH on Induced Fever.—One of the most striking effects of the administration of pituitary adrenocorticotropic hormone (ACTH) to patients with febrile illnesses is the prompt defervescence that is frequently observed. The fever may recur while pituitary adrenocorticotropic hormone is being administered, but it usually subsides again when the dose of the hormone is increased. In many cases, fever, toxicity and other clinical evidences of illness return after pituitary adrenocorticotropic hormone or cortisone is withdrawn. Kass and Finland decided to determine whether pituitary adrenocorticotropic hormone would act as an antipyretic after the artificial induction of fever in man and in animals. They found that the duration and intensity of the febrile response to the injection of typhoid bacilli in man was reduced by previous administration of pituitary adrenocorticotropic hormone. The febrile response of rabbits to injections of typhoid bacilli or influenza virus was similarly reduced by the hormone. Although the mechanism by which pituitary adrenocorticotropic hormone exerts its antipyretic effects is not clear, it is apparent that such an action of the hormone makes it possible that some patients will respond to its administration with reduction in fever, but with no alteration of the fundamental pathological processes of the illness that is being treated.

New Orleans Medical and Surgical Journal

103:181-226 (Nov.) 1950

The Heart in Pregnancy and Labor. O. S. Bethea.—p. 181.
Management of the Climacteric. J. Parks.—p. 184.
Evaluation of Operations for Peptic Ulcers of Stomach and Duodenum. H. Mahorner and M. Brown.—p. 187.

SYMPOSIUM ON UPPER ABDOMINAL PAIN

Neurosurgical Aspects of Upper Abdominal Pain. J. A. Colclough.—p. 193.
Diagnosis of Upper Abdominal Pain. H. Dupuy.—p. 198.
Surgical Indications of Upper Abdominal Pain. L. H. Stander.—p. 202.
Utilization of Transthoracic Approach in Abdominal Surgery. C. Mosely.—p. 207.
Multiple Malignancies of Major Importance Occurring in the Same Individual. C. L. Black and S. Cummings.—p. 211.

Northwest Medicine, Seattle

49:743-824 (Nov.) 1950

Recent Advances in Surgery. W. H. Cole.—p. 769.
*Mikulicz's Syndrome in Chronic Leukemia. J. Radding.—p. 772.
Transthoracic Esophagogastrostomy in Achalasia. R. E. Ahlquist and M. F. Kepl.—p. 774.
Bilateral Ligation of Ureters During Hysterectomy. C. W. Calhoun and J. R. Broun.—p. 777.

Mikulicz's Syndrome in Chronic Leukemia.—Mikulicz's syndrome is characterized by symmetrical enlargement of the salivary and lacrimal glands. The syndrome in Mikulicz's original case was due to an idiopathic infiltration of the glands by lymphocytes without involvement of the spleen or lymph nodes and without alteration of the peripheral blood. Among later reports on this condition, that by Schaffer and Jacobsen presented the first satisfactory classification. They reserved the term Mikulicz's disease for the benign idiopathic cases and Mikulicz's syndrome for those cases due to a known cause, such as leukemia, tuberculosis, syphilis, lymphosarcoma, uveoparotid fever, gout or poisoning with lead or iodides. Radding found reports of 23 cases of Mikulicz's sydrome due to leukemic infiltration, five possibly due to syphilis, two or more due to tuberculosis, six due to lymphosarcoma or Hodgkin's disease and one due to uveoparotid fever. He believes that some of the cases reported as tuberculous in origin were probably cases of Boeck's sarcoid. The case described in this paper is the twenty-fourth of Mikulicz's syndrome caused by leukemic infiltration of the salivary and lacrimal glands. The patient was a young man with chronic aleukemic lymphocytic leukemia and Mikulicz's syndrome, secondary to the leukemia. Because of severe dyspnea and pulmonary infiltrations, he was given blood transfusions and roentgen rays (600 r) to the mediastinum. This produced considerable improvement, but the lacrimal and salivary glands continued to increase in size and became extremely painful. Because of this and a decrease of his peripheral white blood count to 500 per cubic millimeter, the spray therapy was discontinued, and he was given a total of 600 r deep roentgen therapy over the parotid glands. Following this there was a dramatic change, with a return of the lacrimal and salivary glands to normal size. Further deep roentgen therapy was given to the axillary nodes and spleen, with decrease in size of these organs. The patient is now losing weight again, and asthenia is returning.

Radiology, Syracuse, N. Y.

55:477-640 (Oct.) 1950

Some Observations with 1,000-Kv., 400-Kv., and 200-Kv. X-Ray Therapy. W. T. Murphy and M. C. Reinhard.—p. 477.
Radiation Dosimetry in Treatment of Functional Thyroid Carcinoma with I^{131}. L. D. Marinelli and R. F. Hill.—p. 494.
Cephalohematoma in Newborn. M. D. Ingram and W. M. Hamilton.—p. 503.
Roentgen Diagnosis of Lipoma of Corpus Callosum. Report of Case. W. H. Mullen Jr. and J. R. Hannan.—p. 508.
Radiographic Changes in Lungs During Recovery from Drowning. J. J. Romagosa, L. J. Menville and J. T. Leckert.—p. 517.
Tuberous Sclerosis, Neurocutaneous Syndrome. Report of Case. G. C. Budenz.—p. 522.
Traumatic and Related Types of Diaphragmatic Hernia. F. Isaac, F. B. Wilkins and J. Weinberg.—p. 527.
Skeletal Metastases in Carcinoma. H. L. Abrams.—p. 534.
Double-Contrast Studies of Colon with Special Reference to Preparation and Fictitious Polyps. C. W. Yates, R. D. Moreton and E. M. Cooper.—p. 539.
Roentgenographic Findings in Schönlein-Henoch's Purpura. Case Report. J. S. Fetter and W. L. Mills.—p. 545.
Small Intestinal Abnormalities in Anaphylactoid Purpura. Report of Two Cases. J. J. Esposito.—p. 548.
Cortical Fissuring in Osteomyelitis Complicating Sickle-Cell Anemia. R. Wigh and H. J. Thompson Jr.—p. 553.
Effects of Internal Irradiation of Mice With P^{32}. II. Gonads, Kidneys, Adrenal Glands, Digestive Tract, Spinal Cord, Lungs and Liver. S. Warren, J. C. MacMillan and F. J. Dixon.—p. 557.
Deposition of Radiogallium (Ga^{72}) in Proliferating Tissues. H. C. Dudley, G. W. Imirie Jr. and J. T. Istock.—p. 571.
Radiation-Induced Mutations in Mammals. D. R. Charles.—p. 579.
Telognosis. J. Gershon—Cohen and A. G. Cooley.—p. 582.
Clinical Cinefluorography. R. F. Rushmer, R. S. Bark and J. A. Hendron.—p. 588.

V 14
1951

Rhode Island Medical Journal, Providence

33:509-572 (Oct.) 1950

Cutaneous Changes Associated with Pregnancy. A. B. Kern.—p. 525.
Perforated Peptic Ulcer: Five Hundred Cases in Retrospect. A. Corvese, W. P. Corvese and A. D'Agostino.—p. 529.

Surgery, Gynecology and Obstetrics, Chicago

91:385-512 (Oct.) 1950

*Grave Spinal Cord Paralysis Caused by Spinal Anesthesia. F. Kennedy, A. S. Effron and G. Perry.—p. 385.
Prolongation of Occlusion of Cavae in Dogs by Diversion of Circulation: I. Cannulation of Superior Vena Cava. S. E. Leeds, N. N. Gray and O. S. Cook.—p. 399.
Solitary Gallstone. R. S. Mechling and J. R. Watson.—p. 404.
Selection of Operative Procedure for Patients with Medically Intractable Ulcerative Colitis. H. E. Bacon and H. D. Trimpi.—p. 409.
Effects of Sodium and Chloride Lack on Intestinal Motility and Their Significance in Paralytic Ileus. D. H. P. Streeten.—p. 421.
Colostomy, Indications, Technique, and Management. H. M. Wiley and E. D. Sugarbaker.—p. 435.
Gastrojejunocolic Fistulas: Postoperative Complications in 19 Cases. A. W. Skoog-Smith, G. Jaspin and J. V. Sullivan.—p. 447.
Experimental Anastomoses of Common Duct. A. O. Singleton Jr. and R. M. Moore.—p. 455.
*Use of Radioactive Iodinated Plasma Protein in Study of Blood Volume. J. P. Storaasli, H. Krieger, H. L. Friedell and W. D. Holden.—p. 458.
Malignant Blood Vessel Tumors: Report of 56 Cases of Angiosarcoma and Kaposi's Sarcoma. W. D. McCarthy and G. T. Pack.—p. 465.

Spinal Cord Paralysis Caused by Spinal Anesthesia.—Kennedy and his associates point out that so-called controllable spinal anesthesia has come to be almost a routine procedure for many surgeons and some hospitals, sometimes with little regard for possible complications. Figures concerning the incidence of complications vary from 0.01 to 0.5 per cent. An explanation for such lack of uniformity may be found in the fact that in the majority of cases spinal cord symptoms appear some time after the patient has been discharged from surgical care, so that surgeon, anesthetist and patient are unaware of the relation to the spinal anesthetic. The authors report 12 cases of grave paralysis following the use of spinal anesthesia plus three cases described by one of the authors in 1945. They also point out that aseptic, purulent and chronic adhesive meningitis have been reported to occur after spinal anesthesia. Severe progressive complications are sometimes seen as the result of the chronic type of leptomeningitis, with formation of adhesions and thick cicatricial bands. Even cerebral injuries have been reported in association with spinal anesthesia. Convulsive disorders with or without hemiparesis have been known to occur from five to 15 days after spinal anesthesia. Encephalitis has been observed. Some of the cranial nerves and the anterior and posterior roots, the cord and the peripheral nerves have been reported affected by this anesthesia. The neurological complications of spinal anesthesia occur in those regions of the central nervous system or its membranes closest to the site of injection of the anesthetic compound. On introduction of the effective agent into the subarachnoid space, dilution and diffusion occur, but not before considerable absorption and fixation have taken place near the site of injection, where the membrane and nerves are in contact with the full concentration of the anesthetic drug. The authors discuss the contraindication to the use of spinal anesthesia in existing diseases of the central nervous system. The advantages of the excellent relaxation of the abdominal musculature produced by this anesthesia are unquestionable, but one cannot underestimate the gravity of the many possible complications nor the probability of their permanence. The authors feel that spinal anesthesia should be reserved for cases in which local or general anesthetic is unsuitable. Paralysis below the waist is too large a price for a patient to pay in order that the surgeon might have a relaxed field of operation.

Radioactive Iodinated Plasma Protein for Study of Blood Volume.—Storaasli and his associates studied blood volume in 76 human subjects with a method devised by Fine and Seligman in which plasma protein is labeled with radioactive iodine. The persons were ambulatory hospital patients in normal fluid and protein balance. In 30 of them, the disappearance of the iodinated protein from the vascular system was studied over an eight hour period. In 31 patients, plasma volume studies were determined under basal conditions. In 15 patients, a comparison of plasma volumes determined with both Evans Blue and iodinated protein was made. Since the iodinated albumin disappears from the blood stream, experimental procedures were undertaken in animals and humans to determine the fate of the injected material. The method involves measurement of the dilution of protein tagged with radioactive iodine after intravenous injection. Dilution is determined by measurement of iodinated protein labeled with radioactive iodine before the injection and of plasma periodically after the injection. The technic of the procedure is simple and subject to only small error. Repeated determinations can be performed within a short time. The stability of the iodinated protein and its relatively secure retention within the vascular system permit a more accurate estimate of the plasma volume than has hitherto been possible. This method is probably of no more value than others when there is pronounced disturbance of normal physiology, as in profound shock, or other conditions effecting capillary permeability.

91:513-520 (Nov.) 1950

Multiple-Balloon Kymograph Recording of Action of Syntropan and of Trasentin on Motility of Upper Small Intestine in Man. E. N. Rowlands, W. P. Chapman, A. Taylor and C. M. Jones.—p. 513.
Method for Control of Postoperative Pain. B. Blades and W. B. Ford.—p. 524.
Aneurysm of Hepatic Artery: Report of Two Cases and Consideration of Surgical Treatment. J. L. Grant, W. T. Fitts Jr. and I. S. Ravdin.—p. 527.
Saphenofemoral Junction Anomalies. A. R. Mansberger, G. H. Yeager, R. M. Smelser and F. M. Brumback.—p. 533.
Surgical Scrubbing with pHisoderm G-11 as Applied to Maternity Hospital. D. E. Reid, C. W. Walter and A. S. Buck.—p. 537.
Congenital Esophageal Anomalies: Review of 24 Cases and Report of Three. R. K. Brown and E. C. Brown.—p. 545.
Value of Surgical Treatment of Coronary Artery Occlusion by Implantation of Internal Mammary Artery into Ventricular Myocardium: Experimental Study. A. M. Vineberg and P. H. Niloff.—p. 551.
Anatomy of Portal Vein and Its Tributaries. B. E. Douglass, A. H. Baggenstoss and W. H. Hollinshead.—p. 562.
Study of Surgical Scrub. I. H. Blank, M. H. Coolidge, L. Soutter and G. V. Rodkey.—p. 577.
Unheralded Acutely Obstructing Carcinoma of Left Colon. C. M. Pearson and A. V. Mason.—p. 585.
*Study of Lipids in Postpartum Plasma: Its Use in Rheumatoid Arthritis. L. W. Granirer.—p. 591.
Replacement of Blood Vessels by Polythene Tubes. H. D. Moore.—p. 593.
Smear Preparations in Diagnosis of Vulvar Carcinoma. B. Carter, L. A. Kaufmann and W. K. Cuyler.—p. 600.
Endometria Associated with Ectopic Pregnancy: Study of 115 Cases. S. L. Romney, A. T. Hertig and D. E. Reid.—p. 605.
Vesicosigmoidal Fistulas Complicating Diverticulitis. C. W. Mayo and C. P. Blunt.—p. 612.
Use of B Complex and Vitamin C for Prevention and Elimination of Nausea and Vomiting from Diethylstilbestrol. K. J. Karnaky.—p. 617.

Postpartum Plasma in Rheumatoid Arthritis.—A report from the arthritis clinic of Queens General Hospital, Jamaica, L. I., New York, in 1949 revealed that a sustained remission could be produced in rheumatoid arthritis by the administration of pooled postpartum plasma. The remission was characterized by an amelioration of joint symptoms, an improved sense of well being, a brighter mental outlook, increased appetite, a gain in weight, improvement of the anemia and restoration of the albumin-globulin ratio to normal. There were no toxic effects in 520 postpartum plasma transfusions. The longest remission following cessation of therapy was 14 months, and the shortest was three weeks. The mechanism of this beneficial effect in the treatment of rheumatoid arthritis has not yet been elucidated. The total plasma lipids, the fatty acids and the cholesterol esters were determined in pooled plasma specimens. Blood was obtained 48 to 72 hours after delivery and pooled so that each plasma specimen represented the blood of 10 mothers. In most specimens the total lipid and phospholipid levels were below normal. The fatty acids were within normal limits but were never elevated. Unexpectedly, the albumin-globulin ratio was inverted in all of the postpartum patients, and the albumin levels were below normal. In all specimens, the cholesterol and cholesterol esters were well below the normal level. It is suggested that this decrease in cholesterol reflects the pituitary adrenocorticotropic hormone (ACTH) activity in postpartum plasma.

Surgery, St. Louis

28:621-780 (Oct.) 1950

*Chloromycetin and Aureomycin in Experimental Gas Gangrene. W. A. Altemeier, J. A. McMurrin and L. P. Alt.—p. 621.
Evaluation of Aureomycin and Chloromycetin in Experimental Clostridium Welchii Infection. W. R. Sandusky, C. F. Keeble, W. P. Wharton and R. N. Taylor.—p. 632.
Myomatous Tumors of Rectum (Leiomyomas and Myosarcomas). P. A. Anderson, M. B. Dockerty and L. A. Buie.—p. 642.
Adenomas of Colon and Rectum. R. Turell and R. S. Wilkinson. —p. 651.
Carcinoma of Colon Perforating onto Anterior Abdominal Wall. J. G. Merrill, M. B. Dockerty and J. M. Waugh.—p. 662.
Problem of Diagnosis at Time of Operation in Tumors of Head of Pancreas. R. I. Carlson.—p. 672.
Carcinoma of Stomach Following Surgery for Chronic Duodenal Ulcer. D. Orringer.—p. 680.
Observations on Chronic Obstruction of Abdominal Aorta: Leriche's Syndrome. B. Milanes, E. Perez Stables and J. S. Lastra.—p. 684.
Clinical Physiology of Human Bronchi: I. Pain of Tracheobronchial Origin. D. R. Morton, K. P. Klassen and G. M. Curtis.—p. 699.
Blood Volume Studies in Depleted Surgical Patient: Clinical Applications. W. Nelson, J. Clark and M. C. Lindem.—p. 705.
Effects of Abdominal Surgery upon Renal Clearance. I. M. Ariel and F. Miller.—p. 716.
Presacral Neurectomy in Treatment of Dysmenorrhea: Report of 125 Cases. J. J. Fertitta, S. Fertitta and K. T. Miller.—p. 229.
Plateau Fractures of Tibia. C. M. Cornell and R. C. Hardy.—p. 735.
Nail Design: Important Safety Factor in Intramedullary Nailing. L. F. Peltier.—p. 744.
Malleable Ligature Carrier: Designed for Use in Surgery of Patent Ductus Arteriosus. J. L. Madden.—p. 749.
*Extragenital Chorioepithelioma in the Male: Case Report. N. Shlimovitz and D. Van Brown.—p. 755.

Chloramphenicol and Aureomycin in Experimental Gas Gangrene.—Altemeier and his co-workers state that preliminary in vitro tests made on eight strains of Clostridium welchii revealed that five of the eight strains were susceptible to the action of chloramphenicol, while all eight were even more susceptible to that of aureomycin. Guinea pigs weighing 350 to 450 Gm. were chosen as the experimental animals because of their pronounced susceptibility to infection with Cl. welchii and because their reaction to this infection had been observed in previous studies. The strains of the bacteria were highly virulent; they had been isolated from war wounds complicated by gas gangrene. The antibacterial effect of aureomycin was approximately 25 to 500 times greater in vitro than that of chloramphenicol for the strains of Cl. welchii tested. Both agents were effective in prevention of gas gangrene in wounds of experimental animals. The parenteral administration of chloramphenicol in 100 per cent propylene or polyethylene glycol for 72 hours was followed by toxic changes in the liver and kidneys and death of approximately 25 per cent of the animals. The toxic effect was due to the glycol and not to chloramphenicol. In animals treated with chloramphenicol in 20 to 50 per cent propylene glycol solution or by injection of aureomycin in leucine solution, there were no toxic manifestations or death. Discontinuation of either agent after 72 hours in the animals treated immediately after innoculation of bacteria was not followed by development of gas gangrene. The effectiveness of both agents was diminished and limited in established Cl. welchii infections. Parenterally administered chloramphenicol and aureomycin in average dosage appear to be at least as effective as penicillin in massive doses in the prevention or treatment of severe experimental Cl. welchii infections similar to those occurring in man. More complete evaluation of chloramphenicol, however, awaits the development of a suitable, nontoxic vehicle for parenteral use.

Extragenital Chorioepithelioma in the Male.—Shlimovitz and Van Brown present the clinical history of a man aged 27 who was hospitalized with a complaint of abdominal pain. Diagnosis of acute appendicitis was made. At operation the appendix appeared normal, but a large amount of blood was found in the abdominal cavity. This was traced to a soft, bleeding area, 4 cm. in diameter, on the under surface of the right lobe of the liver. A hard, nodular mass could also be felt within the liver. A biopsy specimen taken from the edge of the bleeding area revealed chorioepithelioma. The testes and the breast were normal. A roentgenogram of the chest showed a huge, nodular mass of soft tissue ocupying the anteroinferior two-thirds of the right side of the chest. The possibility of a primary mediastinal neoplasm was considered. Results of urinalysis indicated the excretion of large amounts of chorionic gonadotropin. There was increasing dyspnea. The abdomen was again opened because of evidence of increased intra-abdominal bleeding. The liver was enormous and consisted chiefly of hemorrhagic masses. Bleeding was fairly well controlled by means of oxidized cellulose (oxycel®) and absorbable gelatin sponge (gelfoam®), and the abdomen was closed after a specimen was taken for biopsy. This also showed chorioepithelioma. The patient died several days later. Autopsy revealed primary teratocarcinoma of the right anterior mediastinum, chorioepitheliomatous metastases to lungs, liver, pancreas and kidneys, atrophy of seminiferous tubules and hyperplasia of the interstitial cells of the testes, hyperplasia of the ductal epithelium of the breasts and atelectasis of the right lower lobe of the lung. Origin of the chorioepithelioma in the testes was excluded by a careful study of serial block sections. This is believed to be the twelfth case of proved extragenital chorioepithelioma reported in a male.

Tennessee State Medical Assn. Journal, Nashville

43:357-392 (Oct.) 1950. **Partial Index**

The Months Ahead. R. B. Robins.—p. 357.

43:393-440 (Nov.) 1950

Fetal Salvage in Late Toxemias of Pregnancy. S. S. Lambeth.—p. 393.
Intestinal Obstruction in the Infant and Newborn. J. C. Overall and J. A. Kirtley Jr.—p. 397.
Surgery in Advanced Age Groups. B. F. Byrd Jr.—p. 405.

Virginia Medical Monthly, Richmond

77:513-564 (Oct.) 1950

Differential Diagnosis of Medical and Surgical Jaundice. M. M. Pinckney. —p. 515.
Antibiotics and Chemotherapy in Surgical Disease. W. R. Sandusky. —p. 520.
Psychiatric Implications in Gereology. D. D. Chiles and J. P. King. —p. 531.
Diagnosis and Treatment of Ruptured Cervical Disk. J. L. Thomson. —p. 537.
Psychosomatic Medicine: Mechanisms Common to Some Gastro-Intestinal Dysfunctions. J. F. Williams.—p. 540.
*Use of Male Sex Hormone in Inhibition and Suppression of Lactation. J. C. Parker.—p. 543.

77:565-624 (Nov.) 1950

American Medicine Must Remain Free. W. C. Caudill.—p. 568.

SYMPOSIUM ON HEART DISEASE

Management of Complications of Acute Myocardial Infarction. R. R. Porter, J. W. Massey Jr. and W. Anderson.—p. 571.
Use of Anticoagulants in Management of Acute Myocardial Infarction: Report of 60 Cases. R. H. Sease and J. R. Beckwith.—p. 575.
Differential Diagnosis of Acute Infectious "Idiopathic" Pericarditis and Myocardial Infarction. P. D. Camp and O. W. Clarke.—p. 581.
Pain Mechanisms Associated with Headache. W. O. Klingman.—p. 594.
Vaginal Hysterectomy: Indications and Advantages. J. P. Hennessy. —p. 598.

Male Sex Hormone for Suppression of Lactation.—Parker reports observations on 42 unselected cases in which testosterone was used either orally or by injection to inhibit or suppress lactation. The oral form of the drug, used in 10 patients, consisted either in tablets containing 10 mg. of methyl testosterone, which were swallowed, or in tablets containing 6 mg. of methyl testosterone, which were placed under the tongue, to be absorbed through the buccal mucosa. Administration of the drug was usually started on the first postpartum day. The tablets to be swallowed were given in dose of 30 mg. three times daily for from three to five days, and those for buccal absorption were given in 18 mg. doses three times daily for four days. Thirty-two patients received testosterone injections in total dosages of 100 to 150 mg. The material used was 100 mg. of testosterone in aqueous suspension per cubic centimeter of body surface. The injections were given intramuscularly in divided doses of 50 mg. on successive days. Except in the four patients who did not receive the oral preparation regularly, lactation was suppressed without undesirable side effects. Engorgement of the breasts occurred in three cases; no infection of the breasts occurred. The drug can be given effectively at any time during or before the onset of lactation.

V 14
1951

FOREIGN

Annals of Tropical Medicine, Liverpool

44:207-298 (Oct.) 1950. **Partial Index**

Anophelism Without Malaria in Northern Australia: Malaria Survey of Part of Northern Territory and the East Kimberleys District. R. H. Black.—p. 207.
Diet Protein in Relation to Disturbed Host-Parasite Balance. N. L. Corkill.—p. 212.
Critical Evaluation of DDT and 'Gammexane' in Malaria Control in Upper Assam over Five Years, with Particular Reference to Their Effect on Anopheles Minimus. D. M. Bertram.—p. 242.
Studies in Chemotherapy of Cholera: IV. Antagonism of Antibacterial Activities of 2:4-Diaminopteridines, Sulphaguanidine, and Their Mixtures. H. O. J. Collier and P. D. Waterhouse.—p. 273.
Schizonticidal Effect of Some Antimalarials Against Plasmodium Berghei. J. Hill.—p. 291.

British Journal of Tuberculosis, London

44:83-116 (Oct.) 1950

Atypical Tuberculosis: Case and Discussion. C. Cameron.—p. 84.
Place of X-Ray Kymography in Intrathoracic Disease. G. Simon.—p. 93.
*Streptomycin in Treatment of Pulmonary Tuberculosis. D. Weitzman, W. Cayley and A. L. Wingfield.—p. 98.
Advice to Pneumoconiosis Patients. A. Meiklejohn.—p. 104.
Tuberculosis Stamps, Seals and Emblems. W. J. Bishop.—p.108.
Proposals for Mobile Minor Chest Surgery Unit Service: Preliminary Communication. D. J. Lawless.—p. 113.

Streptomycin in Pulmonary Tuberculosis.—Weitzman and his associates record results obtained with streptomycin therapy in unselected cases of pulmonary tuberculosis in general hospitals. The drug was used in the type of case which, from previous experience, could not be expected to improve with the more conventional methods of bed rest and collapse therapy —excluding decidedly fibrotic or other irreversible lesions. It was used in acute, spreading, mainly exudative and often bronchogenous types of lesions, in which collapse therapy is inadvisable and likely to cause such complications as atelectasis and empyema. The patients were given 1 Gm. daily, in two doses of 0.5 Gm. each. In most cases the total dose was 90 Gm. This was given at first without interruption until the course was completed; later it was given for 14-day periods with four day rest periods between. When improvement was rapid or when no effect could be seen, treatment was sometimes interrupted after only 40 to 60 Gm. had been given. Of the most recently treated patients, 17 were also given paraaminosalicylic acid. Of the 114 patients with pulmonary tuberculosis, 79 were improved. Streptomycin proved of particular value in acute exudative and endobronchial tuberculosis.

British Journal of Venereal Diseases, London

26:109-156 (Sept.) 1950

Cardiovascular Syphilis. C. S. Nicol.—p. 109.
*Syphilis of Lung. I. M. Librach.—p. 126.
Anti-Chancroidal Drugs Tested by Hetero-Inoculation of Bubo Fluid from the Treated Donor. R. R. Willcox.—p. 131.
Cardiolipin-Lecithin Test for Syphilis. R. P. Jayewardene and T. Velaudapillai.—p. 136.
Dual Testing for Serodiagnosis of Syphilis: Abbreviated Complement-Fixation Method. D. B. Colquhoun.—p. 139.
Late Congenital Syphilis: Analysis of 115 Cases. S. M. Laird.—p. 143.

Syphilis of Lung.—Librach reports on a man, aged 49, who entered a chest clinic in 1947 with a six months' history of lassitude, tiredness and loss of weight and appetite. He was bringing up a moderate amount of mucopurulent sputum. A chest roentgenogram showed extensive mottling at the right apex with discrete heavy shadows at the bases. He was told to go home and rest, while awaiting admission to a sanatorium. In 1948 he again gave a history of loss of weight, strength and appetite. He also complained of tightness and fulness of the chest. A chest radiograph revealed a fibroid appearance of the right lung apex, hard shadows in both mid zones, exaggerated hilar shadows and ill defined mottling in the left upper and mid zones. Results of successive sputum examinations for acid-fast bacilli on six occasions were negative. Examination of the nervous system revealed that neither of the pupils reacted to light but reacted to accommodation. Deep reflexes were exaggerated in both arms and legs. The plantar reflexes were extensor. He was hypoaesthetic to pinprick over the whole body but especially in both legs, where muscle sense was also diminished. Subsequent questioning elicited a history of a penile chancre, contracted on war service in 1916, which had been treated with mercury and arsphenamine for six weeks. The diagnosis of neurosyphilis was confirmed, and the patient was given a course of 85 injections of 40,000 units of penicillin every two hours, followed by a course of arsenic and bismuth. Considerable improvement was noticeable a year later. The criteria on which a clinical diagnosis of pulmonary syphilis can be based include an anomalous history of pulmonary disease, often with hemoptysis, cough, loss of weight and fever; exclusion of common causes such as new growth and tuberculosis, the latter by repeated failure to find tubercle bacilli in the sputum; the presence of a history of syphilis and of associated syphilitic lesions in other organs and of positive serum reactions; the effect of antisyphilitic therapy, and the radiographic appearances, particularly in association with response to treatment.

British Medical Journal, London

2:1073-1128 (Nov. 11) 1950

*Treatment of Pulmonary Tuberculosis with Streptomycin and Para-Amino-Salicylic Acid: Medical Research Council Investigation. G. Marshall, R. Cruickshank, M. Daniels and others.—p. 1073.
Intra-Arterial Histamine in Treatment of Claudication and Rest Pain. W. A. Mackey.—p. 1086.
Blood-Pressure Changes During Angiocardiography. S. Howarth.—p. 1090.
Problem of Therapeutic Convulsion. T. D. Power.—p. 1092.
Treatment of Intertrochanteric Fractures of Femur by Internal Fixation. G. P. Arden and G. J. Walley.—p. 1094.
Acute Poisoning with Potassium Bichromate. C. N. Partington.—p. 1097.

Pulmonary Tuberculosis Treated with Streptomycin and Para-aminosalicylic Acid.—Marshall and co-workers report a clinical trial with paraaminosalicylic acid and streptomycin in 166 patients with acute progressive bilateral pulmonary tuberculosis of recent origin, bacteriologically proved and unsuitable for collapse therapy. Fifty-nine patients were given 20 Gm. of the sodium salt of paraaminosalicylic acid in four divided doses by mouth daily for three months. Fifty-four patients received 1 Gm. of streptomycin by intramuscular route daily for three months. Fifty-three patients were treated with both paraaminosalicylic acid and streptomycin in the same dosage as for the other two groups. Patients were assigned to a treatment group by random selection. Observation continued for three months after discontinuation of the chemotherapy. Comparison of results obtained with paraaminosalicylic acid alone with those obtained in the control group treated by bed rest alone showed that patients treated with paraaminosalicylic acid fared much better than those treated by bed rest. Comparison of results in the present chemotherapeutic trial showed that paraaminosalicylic acid was less effective than streptomycin. Of the 59 patients treated with paraaminosalicylic acid alone, 20 (34 per cent) did not present any appreciable roentgenologic changes as compared to three of the 54 patients (6 per cent) treated only with streptomycin. Pronounced roentgenologic improvement was observed in 13 patients (22 per cent) treated with paraaminosalicylic acid alone and in 30 (56 per cent) of those treated with streptomycin alone. The difference was greatest in febrile patients. Improvement was somewhat greater in the group treated with both paraaminosalicylic acid and streptomycin, but the difference was small. The proportion of cases in which bacteria were no longer found was highest in the group treated with both drugs. Strains with a streptomycin resistance ratio above 8 were isolated in 33 of 49 patients treated with streptomycin and in only five of 48 patients treated with both drugs. There was only one resistant culture in two of these five patients. Deterioration in the condition of the group of patients treated with streptomycin alone was related to development of streptomycin resistance.

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

Acta Endocrinologica, Copenhagen

5:101-194 (No. 2) 1950. **Partial Index**

Investigations on Urinary Excretion of Corticoids and 17-Ketosteroids During Administration of Adrenocorticotrophic Hormone (ACTH). M. Sprechler.—p. 101.
Effects of Adrenaline on Number of Circulating Eosinophils and on Excretion of Uric Acid and Creatinine. O. J. Broch and H. N. Haugen. —p. 143.
Ascorbic Acid Content of Pituitary Gland in Relation to Stress and Adrenalectomy. G. A. Overbeek.—p. 151.
*Allergy to Estrone in Cases of Migraine. J. C. De Wit.—p. 173.

Allergy to Estrone in Migraine.—De Wit points out a definite relation between attacks of migraine and endocrine function, particularly in the gonads. Migraine first appears after puberty in both sexes. The attacks in women are frequently related to menstruation, whereas they are absent during pregnancy. De Wit investigated 70 women between 14 and 45 years of age with regard to the occurrence of migraine in connection with the menses. In 21 patients typical premenstrual migraine attacks occurred once a month. The attack came on a few days before menstruation and disappeared as soon as the menstrual flow started. Nine women had typical premenstrual migraine but also less severe attacks midway between two periods (minor estrogen peak). Eight women had menstrual migraine, i. e., violent attacks occurring as soon as the menstrual flow started. Four women had typical postmenstrual migraine, i. e., the attacks did not set in until the menstrual bleeding had stopped, while three of them had irregular attacks in between. In 28 cases there was no relation between the onset of the attacks and menstruation. Thus there was a connection between migraine and menstruation in 42 (60 per cent) of these women. The author also studied these women for the existence of allergy to estradiol benzoate (in oil) and to estrone (in oil and water) according to the Zondek and Bromberg method. Thirty-nine (56 per cent) of the women seemed to have a positive allergic reaction. These 39 all belonged to the group of 42 in whom there was a relation between the onset of the attacks and menstruation. In 11 women the allergic reaction was accompanied with a migraine attack.

Bullettino delle Scienze Mediche, Bologna

122:265-328 (July-Sept.) 1950. **Partial Index**

*Closure of Postoperative Duodenal Fistulas with Grafts of Placenta. A. Franchini.—p. 277.

Placental Grafts in Postoperative Duodenal Fistulas.—Spontaneous closure of duodenal fistula is extremely rare. As a rule the fistula becomes permanent. Franchini used placental grafts in four cases of duodenal fistula that developed after gastric resection for antral gastric cancer or for stenosing duodenal ulcer. Administration of insulin and dextrose and continuous aspiration of the duodenal juice and bile failed to cure the fistula. Grafting operation was done between four and 14 days after the appearance of the fistula. The fistulas closed five to 10 days afterward, during which time continuous aspiration of the duodenal juice and bile was practiced. The operative wound healed promptly after closure of the fistula. The patients were observed for several weeks after their discharge from the hospital. No recurrence of the fistula was noted.

Deutsche medizinische Wochenschrift, Stuttgart

75:1357-1388 (Oct. 13) 1950. **Partial Index**

Differential Diagnosis of Clinical Aspects of Pulmonary Tumors in Relation to Thoracic Surgery. K. Protzek.—p. 1357.
*Animal Experiments on Exchange Blood Transfusion in Acute Uremia. H. G. Wiegmink.—p. 1360.
Multiple Primary Cancers and Predisposition to Cancer. P. W. Springorum.—p. 1363.
Antibiotics in Treatment of Chronic Suppurating Bronchopulmonary Infections. O. Kühne.—p. 1366.

Exchange Transfusion in Acute Uremia.—Wiegmink demonstrated that it is possible to overcome the uremia and keep a uremic animal alive by the exchange of blood between it and a healthy animal. The blood of the uremic animal is detoxicated by the healthy kidneys of the animal with whom the blood is exchanged. Dogs were made uremic by transperitoneal exposure and ligature of the ureters. The exchange transfusion was accomplished with Braun's transfusion apparatus. The dogs were given heparin to avoid blockage of the apparatus. The saphenous vein was exposed, and a thin Nélaton catheter introduced and pushed toward the heart until its point was located in the inferior vena cava. The catheter was tied, and 30 cc. of blood was transfused; after the blood had flowed into the recipient, the flow was reversed. This technic insured that each animal received as much blood as was withdrawn. The author stresses that fractionated exchange of blood is important. The uremic animal was kept alive, and healthy dogs tolerated the fractionated introduction of large amounts of uremic blood without noticeable disturbances and without an increase in the rest nitrogen. Histological studies of the kidneys and liver showed no demonstrable lesions. The author concludes that exchange transfusion can be tried in the treatment of human uremia.

Hospital, Rio de Janeiro

38:653-784 (Nov.) 1950. **Partial Index**

*Diethylaminoethoxy-2-diphenyl (1262 F) in Paroxysmal Tachycardia. W. H. De Mesquita.—p. 653.

Diethylaminoethoxy-2-diphenyl in Paroxysmal Tachycardia.—De Mesquita treated 11 patients with frequent paroxysms of tachycardia with diethylaminoethoxy-2-diphenyl. The drug was given by mouth in doses of 25 mg. every three hours until the disappearance of tachycardia. Subsequently it was given every four, five or six hours. Tachycardia was controlled in 10 of 11 patients within the first 24 hours after administration of the drug. The treatment was continued for one to 10 months until the pulse became regular, as demonstrated by the electrocardiogram. The drug was well tolerated. The series included five cases of auricular fibrillation, four of auricular paroxysmal tachycardia, one of ventricular paroxysmal tachycardia and one of ventricular paroxysmal tachycardia with multiple irritable foci. The only case in which the drug failed was that of a patient with an auricular paroxysmal tachycardia in a Wolff-Parkinson-White syndrome.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

94:2949-3012 (Oct. 14) 1950. **Partial Index**

Atelectasis or Obstructive Pneumonia. W. Bronkhorst.—p. 2950.
*Chemotherapy of Infected Bile Passages: Preliminary Report. C. A. Graafland and E. J. van Kampen.—p. 2964.
Hydrogen Ion Concentration of Ointments. G. J. N. Vleugels Schutter. —p. 2971.

Chemotherapy of Infected Bile Ducts.—According to Graafland and van Kampen, it has not been determined to what extent bacterial infections constitute the primary cause of disorders of bile ducts. Since the sulfonamides are ineffective in bacterial infections of bile ducts, largely because the liver changes or diverts them, the authors combined sulfanilamide with disulfanilamidophenolphthalein, a substance that is excreted by the liver in the bile. In vitro studies demonstrated that this compound is active against coli and typhoid bacilli and against a group of viridans streptococci. The authors suggest that disulfanilamidophenolphthalein might prove effective in cholangitis, cholecystitis and in the treatment of the carrier state of typhoid bacilli. The substance in vitro is also active against tubercle bacilli.

Rev. Asociación Médica Argentina, Buenos Aires

64:395-432 (Sept. 15-30) 1950. **Partial Index**

*Syndrome of Extrarenal or Prerenal Azotemia: Relation to Lower Nephron Nephrosis. A. Goñi.—p. 415.

Prerenal Azotemia and Lower Nephron Nephrosis.—Goñi points out that functional renal azotemia, so-called extrarenal azotemia, is caused by a functional disorder of the lower segment of the convoluted renal tubules, with consequent disturbance of water metabolism, sodium and blood chlorides. Shock, dehydration with consequent hypochloremia and hyponatremia, insufficiency of the liver and of the kidneys, infection with increased breaking down of the proteins and the reabsorption of secondary proteins are the causal factors after an

V 14
1951

operation. The clinical symptoms of functional renal azotemia are the same as those of acute renal insufficiency in lower nephron nephrosis, although much milder. The early tubular lesion is mild in functional renal azotemia but is grave in lower nephron nephrosis. Renal azotemia is reversible in the functional stage. Treatment consists of plasma or blood transfusion, intravenous administration of isotonic sodium chloride or dextrose solution, vitamins and antibiotics. Persistence of anuria and uremia, after restoration of the balance of water and salts in the blood and after control of the infection, shows the second decreasing stage of the disease in which the treatment is the same as that in acute renal insufficiency in lower nephron nephrosis. The aim of the treatment is maintenance of the chemistry of the blood and water metabolism as close to normal as possible. Overhydration of the patient should be avoided, since renal functions are nil in this stage. The third and last stage after control of anuria and oliguria is that of an abundant diuresis with ample elimination of sodium chloride and passage of urine of relatively low concentration. The author points out the relation between prerenal azotemia and acute renal insufficiency in lower nephron nephrosis, in both of which the predominant lesions are located in the lower segment of the convoluted renal tubules.

Schweizerische medizinische Wochenschrift, Basel

80:1173-1200 (Nov. 4) 1950. **Partial Index**

Practical Value of Determination of Pregnanediol in Threatened Abortion. C. Müller.—p. 1173.
*Amide of Salicylic Acid. F. Holtz and I. Drebinger.—p. 1175.
Luteotrophic Hormones and Human Chorionic Hormone. Experimental Study on Ovary of Adult Rat. R. Bourg and J. Simon.—p. 1178.
Old Frostbite and Associated Vascular Changes. F. Judmaier.—p. 1180.

Amide of Salicylic Acid.—Salicylic acid amide, like other salicylic acid derivatives, has an analgesic, antipyretic and antirheumatic effect when given in doses of 1 to 2 Gm. six to 10 times daily. It is less toxic than acetylsalicylic acid, as shown in animal experiments carried out by Holtz and Drebinger. In rabbits and rats, both salicylic acid and acetylsalicylic acid produce albuminuria, but salicylic acid amide does not. In rats and mice the lethal dose (LD_{50}) of the amide is 33 per cent higher than that of acetylsalicylic acid. In man the amide is well tolerated in large doses for many days. It does not produce renal irritation, vomiting or tinnitus even in doses of 14 Gm. per day. In large doses, salicylic acid amide has a soporific effect, and it is suggested that it be tested as a soporific. The rapid, complete excretion of the drug by the kidneys produces a high concentration in the urine, which might be valuable in the control of urinary infections. Although several hundreds of persons have been treated with large doses of amide of salicylic acid without disturbance of the white blood cell picture, it should be kept in mind that granulocytosis, which may result from treatment with salicylic acid and its derivatives, might also be induced by amide of salicylic acid in persons with a special predisposition to that condition.

Semaine des Hôpitaux de Paris

26:4275-4336 (Nov. 10) 1950. **Partial Index**

Mixed Mental Conditions. L. Michaux, M. Saulnier and G. Bureau.—p. 4275.
Depressive Syndrome in an Epileptic Female Patient: Instantaneous Effect of Pneumoencephalography by Lumbar Route. L. Michaux, H. M. Galliot and Poilpre.—p. 4286.
*Anatomic Study of Coma Induced by Insulin Therapy in Two Cases. L. Michaux, J. Bertrand, J. Scherrer and A. Bourguignon.—p. 4288.

Anatomic Study of Coma Induced by Insulin Therapy.—Michaux and co-workers report on a boy aged 15 and a man aged 24, both of whom were given insulin treatment for schizophrenia. The injections did not produce convulsions, spasms, or paralysis. The boy was given a total of 2,040 units of insulin in the course of 20 days. Coma was induced when he had had 1,560 units of insulin and again after he had received the total dose. Within 20 minutes after the administration of 300 Gm. of sugar following the second coma, asphyxia developed with deep cyanosis. Death occurred within one hour despite treatment with ouabain, morphine and oxygen. The man was given a total of 1,840 units of insulin in the course of two weeks, during which he went into coma six times. Asphyxia and cyanosis developed after the sixth occurrence of coma, and death resulted within five hours. Necropsy revealed pulmonary edema in both cases, apparently the cause of death. Extensive cell degeneration was observed in the cerebellum of the boy. There was liquefaction of the granule cells with disappearance of nuclei. Golgi's and Purkinje's cells were not impaired. The lesions were limited to the neuroganglions and particularly to the granular layer. There was no neurogliar reaction and no perivascular lesion. The cerebral lesions were abiotrophic but less pronounced than in the neuroganglions. The parenchyma of the cerebellum of the second patient showed much interstitial edema, particularly at the level of the white substance, while the granular layer and Purkinje's cells were not impaired. There was no proliferation of neuroglia cells or of the vascular adventitia. The cerebral edema was even more pronounced. It is noteworthy that the interstitial edema considerably outweighed the cell lesions in the second case, while the cell lesions were predominant in the first case. Other authors have noted that cell lesions predominate if coma has a rapid course, while vascular lesions are more prominent in cases of prolonged coma. These lesions may be interpreted as the result of an indirect toxic effect of the insulin, while it seems more difficult to attribute the cell lesions to the insulin. Their pathogenesis remains doubtful. The schizophrenic process may play some part in their causation.

Tuberkulosearzt, Stuttgart

4:557-628 (Oct.) 1950. **Partial Index**

Primary Tuberculous Infection: I. Rate of Infection Among the Population on Basis of Pathological-Anatomic Investigations. O. Koch.—p. 557.
Indications for and Limits of Collapse Therapy in Primary Tuberculosis. G. Babolini.—p. 570.
*Experiences with Thiosemicarbazone, Paraaminosalicylic Acid and Streptomycin and with Their Combined Administration in Pulmonary Tuberculosis. H. Bottke and W. Schröter.—p. 573.
Changes in White Blood Picture During Treatment with Thiosemicarbazone and Paraaminosalicylic Acid. H. Schubert.—p. 579.
*Products of Transformation of Paraaminosalicylic Acid: Their Toxicity. P. Marquardt.—p. 583.
Treatment of Tuberculous Pleural Empyema in Presence of Bronchial Fistulas. S. Piller.—p. 588.
Technic of Puncture of Tuberculous Cavity. H. Schmidt.—p. 593.
Plaster—Casts in Treatment of Tuberculosis of Bones and Joints. H. Lerch.—p. 595.
Results of Mass Roentgenographic Examinations with Particular Attention to Temporary Infiltrations. F. Matthäus.—p. 597.

New Treatments in Pulmonary Tuberculosis.—Bottke and Schröter found that thiosemicarbazone or amithiozone rarely influenced tuberculous cavities. Dissemination of the tuberculous process or further breakdown of tissues occurred at times during the administration of amithiozone. Pneumothorax exudates and febrile pleurisy were not prevented by this drug. The drug sometimes caused anemia, loss of appetite, nausea, vomiting and even hepatic impairment. It appears that amithiozone is best suited for local application and for tuberculosis of the mucous membranes. It produced favorable results in cases of laryngeal and intestinal tuberculosis. A case of tuberculosis of uvula and pharynx responded to dusting with amithiozone powder and to oral administration of the drug. Irrigation with solution of amithiozone and subsequent instillation of amithiozone powder into the cavity is the method of choice in tuberculous pleural empyema. Paraaminosalicylic acid also seems to be most effective when applied locally, in a 2.5 or 5 per cent solution for intracavitary application and in a 20 per cent solution for tuberculous pleural empyema. The authors used intramuscular injections (1 Gm. daily) of streptomycin in four cases as the only treatment and concluded that it was more effective in pulmonary processes than the other two drugs. The two drugs are more effective when used in combination. This combined treatment arrests febrile, progressive tuberculous lesions, and the residual process can then be subjected to collapse therapy.

Toxicity of Transformation Products of Paraaminosalicylic Acid.—Marquardt points out that the decomposition products of therapeutic substances like paraaminosalicylic acid should be considered. The drug is unstable and has caused poisoning. When its aqueous solutions stand for a while or when they are being heated, metaaminophenol forms as the result of decar-

boxylation. Metaaminophenol discolors very slowly. A colorless solution of paraaminosalicylic acid may contain large amounts (up to 25 per cent) of metaaminophenol. Thus, absence of discoloration in a paraaminosalicylic acid solution does not insure its purity. The author describes animal experiments with metaaminophenol that prove the toxicity of this substance. He stresses that manufacturers of paraaminosalicylic acid should be obliged to state the metaaminophenol content of their preparation and to guarantee its storability. The phenol content of the aqueous solution of the product and the number of hours such a solution can be stored should be stated. The author warns against the use of preparations that do not give these data on the label. When metaaminophenol becomes discolored by oxidation it is much more toxic than when it is not discolored.

Ugeskrift for Laeger, Copenhagen

112:1345-1374 (Sept. 28) 1950. **Partial Index**

Maintenance Treatment of Pernicious Anemia with Injections of Liver Extract. P. Schultzer and J. Jørgensen.—p. 1345.
*Penicillin Treatment of Acute Tonsillitis. T. Bennike, K. Brøchner-Mortensen, E. Kjaer and others.—p. 1347.
Polycythemia Vera with Hemorrhagic Diathesis and Fibropenia. K. H. Olesen and L. Paulsen.—p. 1351.
Aminopterin Treatment of Leukemia in Childhood. T. Jersild and S. Mehlsen.—p. 1354.

Penicillin Treatment of Acute Tonsillitis.—Of 349 cases of acute tonsillitis, 132 of phlegmonous tonsillitis and 26 of ulcerous tonsillitis reported on by Bennike and his co-workers, half were treated with penicillin, and half served as controls. Penicillin was found to have a definite effect in streptococcus tonsillitis and phlegmonous tonsillitis. Fever and throat pain disappeared more rapidly than in the control cases, and the number of pyogenic complications during the acute course was reduced. There was, however, no effect on recurrence and sequelae. Penicillin seemed to be of no value in the treatment of tonsillitis in patients, including a large number of children, in whom no streptococci were found. No contraindications to penicillin therapy were found.

112:1375-1404 (Oct. 5) 1950. **Partial Index**

*Penicillin Treatment of Syphilis. Review. H. Haxthausen.—p. 1375.
Gonoreaction and Penicillin Treatment. B. Sylvest.—p. 1378.
Acute Infectious Pulmonary Atelectasis in Children Simulating Bronchopneumonia: Symptomatology and Treatment. T. Jersild and N. Riskaer.—p. 1384.
*Aureomycin Treatment of Primary Atypical Pneumonia (Virus Pneumonia). T. Hilden and S. Nørregaard.—p. 1389.
Aureomycin in Treatment of Herpes Zoster Ophthalmicus. H. Jessen and K. E. Mosegaard.—p. 1391.
Amidryl "MCO" as Effective Remedy for Seasickness. B. Barfod.—p. 1395.

Penicillin Treatment of Syphilis.—Haxthausen mentions two aspects of the treatment of syphilis—the epidemiologic, which concerns the danger of infection, and the individual, which concerns the final course of the disease, where the possibility of grave late complications is of decisive importance. Where there is a population that does not sufficiently respect the danger of infection or in the case of a transient group, the epidemiologic viewpoint predominates. Penicillin represents the most effective control of syphilis as an epidemic disease. In the northern countries the question of prevention of late syphilitic complications is the chief problem. Penicillin is now preferred in cases where arsphenamine or bismuth is not well tolerated, in the case of patients, such as seamen, in which it is doubtful whether the long-continued combination treatment will be correctly carried out, and during pregnancy, especially the last half of pregnancy, in which arsphenamine is likely to cause serious and even fatal side effects. Penicillin rarely causes grave side effects. Penicillin is also preferable to the old treatment in congenital syphilis in infants. In neurosyphilis, penicillin, with or without fever therapy, seems to have a particularly good effect. It is also to be preferred in cardiovascular syphilis, partly because the danger of side effects is slight. On the other hand, penicillin is of little or no effect in most cases of so-called latent syphilis, in which a positive serum reaction is the only symptom. In the so-called serum-resistant cases, penicillin is usually without definite effect. In late congenital syphilis the results of penicillin treatment offer but little encouragement. General rules for dosage cannot be given. At the Rikshospital, 300,000 units daily of procaine penicillin are given subcutaneously for about two weeks. In recent primary syphilis a second series of the same kind is given after a month's interval; in secondary or even later stages three series as a rule are given. In neurosyphilis the same daily dose is continued for three weeks, generally combined with fever therapy; after an interval of one or two months the penicillin treatment is repeated, most often without fever therapy. In congenital syphilis 100,000 units are given daily for two weeks, and after intervals of a month the treatment is repeated once, twice or three times, till all symptoms have disappeared and results of the Wassermann test are negative. With this treatment, there is good reason to look for more certain and permanent effect than with treatment in one series.

Aureomycin in Primary Atypical Pneumonia (Virus Pneumonia).—Hilden and Nørregaard say that on the basis of earlier reports and their own cases there can be no doubt as to the specific action of aureomycin in primary atypical pneumonia. The treatment is indicated in cases in which the diagnosis seems certain and is further assured by resistance to penicillin treatment. The tendency will be toward use of aureomycin in every case in which the clinical picture alone makes virus pneumonia probable. Inevitably, some cases of pneumonia of bacterial etiology will then be included, but, according to the investigations of Finland and his associates, aureomycin is effective in these cases also. Thirteen cases of primary atypical pneumonia treated with aureomycin are reported. Diagnosis was made from the clinical picture and confirmed by the resistance to penicillin and sulfonamide treatment. In 12 cases the temperature was normal in one to three days; in one instance it remained subfebrile for three weeks. A control series showed that the fall in temperature was not spontaneous. A dose of 0.5 Gm. of aureomycin five times daily for adults seems to be effective and not likely to cause gastric disturbances. The dosage can perhaps be reduced still further. In most cases the treatment should not be continued for more than three or four days.

V 14
1951

Zentralblatt für Chirurgie, Leipzig

75:1217-1296 (No. 18) 1950. **Partial Index**

Laughing Gas (Nitrogen Monoxide) Anesthesia in Clinic and Policlinic. R. von Ondarza.—p. 1221.
*Problems of Postoperative Disturbances After Removal of Gallbladder. W. Heim.—p. 1225.
Therapy of Postoperative Functional Disturbances of Liver. G. Habelmann.—p. 1241.
Perforating Injuries of Liver. J. Brust.—p. 1246.
Surgical Treatment of Pancreatic Cysts. W. Sehmisch.—p. 1251.

Postoperative Disturbances After Cholecystectomy.—Heim investigated the mechanism of the digestive disturbances that frequently follow removal of the gallbladder. He performed biopsies of liver and gallbladder, made cultures of bile and analyses of gastric juice and urine in 250 patients after cholecystectomy. Pathological and bacteriologic studies yielded no significant information, but gastric analyses gave an important clue. Sixty per cent of the patients with digestive disturbances after cholecystectomy had hypoacidity or anacidity. This was apparently due to regurgitation of bile into the stomach rather than to a change in the mucous membrane of the stomach. Improvement in the digestive disturbances may therefore be obtained with drugs and diets that restore the gastric acidity to normal. Most of the patients with gastric disturbances also showed an increase of the urobilinogen in the urine. The great majority of the disturbances after cholecystectomy were functional and must be attributed to autonomic imbalance. In cases of this type, satisfactory results were obtained with lumbar sympathetic block. One should not attribute symptoms of this kind to "adhesions." Because of the high incidence of postoperative complications, more exact indications for cholecystectomy should be established. To rule out other conditions simulating cholecystitis the following examination should be done: gastric analysis and roentgenography to rule out peptic ulcer or carcinoma; examination of duodenal juice and pancreas, particularly when cholecystograms are negative; determination of alkali reserve and urobilinogen content of the urine, and performance of Takata, thymol turbidity and bilirubin tests.

BOOK REVIEWS

Santa Claus, M.D. By W. W. Bauer, M.D. Cloth. $2.75. Pp. 266. Bobbs-Merrill Company, Inc., 724 N. Meridian St., Indianapolis 7; 468 4th Ave., New York 16, 1950.

The author of this book is well suited to reviewing for the general population the role of the medical profession and the health of the nation. He has long been known for his work in the health education field and for his characteristic way of marshalling convincing facts rather than relying on emotion to sway an audience.

This book contains information that answers countless questions. While there may be some dispute with respect to some of the figures or interpretation of these figures, the dispute will not come from friends or critics of medicine who really seek a presentation of basic information and philosophy and who are willing to forego minor details that provide nothing except fodder for argument. Dr. Bauer strikes in his book at the basic philosophy underlying compulsory health insurance, freedom for the layman or patient or taxpayer—whichever you may wish to call him—and the physician. While the book is written in popular style, it is not flippant and it is one that the physician can well use to bolster his own arguments or to pass along to patients and friends who would like facts. In addition to the presentation of 16 chapters on the various aspects of the subject, the author offers several appendixes of unusual interest: one having to do with the status of health activities in various states, another a reading list on health insurance and another on pamphlets that are available from the headquarters of the American Medical Association.

For the man or woman who wishes an unemotional but convincing presentation, Dr. Bauer offers a book that presses the argument that government control of medical care will result in medical care that is "more expensive, less personal, less efficient, constantly deteriorating and politically controlled."

The Medical Annual 1950: A Year Book of Treatment and Practitioners' Index. Editors: Sir Henry Tidy, K.B.E., M.A., M.D., and A. Rendle Short, M.D., B.S., B.Sc. Contributors: E. W. Anderson, M.D., F.R.C.P., D.P.M., and others. Sixty-eighth year. Cloth. $5.50. Pp. 439, with 96 illustrations. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2; John Wright & Sons, Ltd., 42-44, Triangle West, Bristol 8, England, 1950.

This book surveys, primarily from the British point of view, the progress made in medicine and surgery during the year ending June 1950. The two editors present an introduction which highlights certain recent advances. The body of the review is by 43 different contributors, including one of the editors. Most of them are prominent leaders of their respective fields in the United Kingdom; one is the dean of an American medical school.

The information is arranged under alphabetized headings like an index. This arrangement frequently separates related facts, diseases or conditions but provides convenient reference. All phases of medicine and surgery are included, and this sometimes results in the retention of old information and makes the book a synopsis for general reference purposes rather than a review of only late developments. By American standards, the latest therapeutic information is not included; this omission appears to be the result of a limited supply of certain agents or a lack of experience with them rather than oversight. Most of the recently developed antibiotics and hormones in use are mentioned except terramycin and pituitary adrenocorticotropic hormone (ACTH). The antimalarial chloroguanide (U.S.P.), longer known as paludrine in Britain, is said not to have fulfilled its early promise. Skepticism is also properly expressed for other methods of treatment in many instances (e. g., tetraethylthiuram disulfide [antabuse®] in alcoholism; vitamin E for heart disease). With other drugs there is more enthusiasm than in the United States (e. g., intravenous procaine as an analgesic).

The book includes a practitioners' index which describes new pharmaceutic products and surgical appliances. Some of the descriptions include manufacturers' claims which are contradicted by the critical opinions expressed in the body of the book. Another feature is a list of books published during the year either for the first time or as new editions. The list includes American as well as British publications. A general index is provided with principal references in bold face type. The generally pleasing form is marred somewhat by the insertion of advertising pages at both front and back; an index to the advertisers and to advertised books is also provided. An attached bookmark also bears advertising. The predominantly British viewpoint and nomenclature make this book less useful to American than British physicians.

Health Services and Special Weapons Defense. Executive Office of the President, Federal Civil Defense Administration, publication AG-11-1. Paper. 60 cents. Pp. 260, with illustrations. Supt. of Doc., Government Printing Office, Washington 25, D. C., 1950.

This book sets forth in detail a program for the development of state and local civil defense health services. It outlines the functions, responsibility and organization of civil defense services, the responsibility, for which rests jointly on federal, state and local government. It is pointed out that civil defense must be primarily a civilian responsibility, as in time of war the military forces must concentrate on their primary mission. Plans for health services in civil defense, therefore, must be made on the assumption that no help from military personnel, equipment or supplies will be available for civilian wartime disaster relief. The whole field of health services is covered. Of particular interest to physicians are the paragraphs on treatment of burns. The method described is not held out as the ideal method but as effective and adaptable to mass treatment methods "and would not predetermine subsequent treatment." School buildings are described as the most satisfactory type of structure for conversion to emergency hospital use, because, among other reasons, they are distributed throughout a metropolitan area. Among the chapters are those devoted to radiologic and biologic poisoning, training and first aid, laboratory services and public health. The book emphasizes that a community must have available at all times sufficient supplies to care for its own casualties during the first few hours following the attack. Eventually, a copy of this booklet will be in the hands of every physician and key civil defense worker. Individual copies may be purchased from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., for 60 cents, with a 25 per cent discount for purchases of 100 or more. Further information concerning this booklet appeared in the Washington News on advertising page 19 of THE JOURNAL, Jan. 6, 1951.

Die Lunge des Kindes: Wachstum, Anatomie, Physiologie und Pathologie in den verschiedenen Altersperioden. Von Prof. Dr. Stefan Engel. Cloth. 29.70 marks. Pp. 288, with 283 illustrations. Georg Thieme Verlag, Diemershaldenstr. 47 (14a), Stuttgart O; Agents for U. S. A.: Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1950.

On the basis that he who wishes to build must begin with the fundamentals, Engel reasons that anatomy appears old fashioned but that function is modern. But what will be the outcome if there is digression from the firm anatomic foundations to the fanciful concepts that finally conclude in vitalism? Just recently, in the *British Medical Journal*, the medical historian Charles Singer pointed out that new knowledge in anatomy precedes advances in clinical medicine. Engel is concerned with the age factors in the growing lung considered from birth to puberty as a basis for understanding of diseases

The reviews here published have been prepared by competent authorities and do not represent the opinions of any official bodies unless specifically stated.

of the child's respiratory apparatus, a feature formerly poorly defined. With this in mind, form and structure of the lung and the bronchial tree in the various ages are clarified. These phases occupy the major part of the book. Conclusions reached from a more profound knowledge of morphology follow naturally into the physiology, pathology, clinical picture and roentgenology of the lung. The author realizes that he may be going somewhat against the modern trend and accordingly does not view this book as a textbook but as a self-explanatory structure. Therefore, he does not stress certain structural or functional problems, such as the segmental divisions or the appearance of a neuromuscular organ. The contents are divided into two parts: the bronchial tree and bronchial glands and the lung. Considered in sequence are macroscopic anatomy, distribution of bronchi and bronchioles, histological structure at various ages, the width of the air passages, purification of air in the bronchial tree, pathology of the bronchial tree, bronchial and bronchiolar catarrh, bronchitis and bronchiolitis, bronchiectasis, bronchial glands, the hilus and pathology of the hilar lymph nodes, the fetal lung, chronological development of the thorax and lung, pulmonary histology, respiratory bronchioles, acinus of the infant lungs, growth of the lung, constituents of lung tissue, blood supply of lungs, alveolar pores, morphology and function, pneumonia (general pathology, multifocal or bronchopneumonia, the roentgen picture) the miliary tubercle, and the primary complex and pulmonary diseases in childhood.

Although limited to the lung of the child, this well presented volume merits reading by thoracologists and all those interested in detailed understanding of the lung and thorax. The pediatrician obviously will find the information of direct concern to him. It can be recommended as a well prepared volume aimed at answering many puzzling questions involving the child's thorax and lungs.

Functional Anatomy of the Vertebrates. By Daniel P. Quiring, Ph.D., Associate Professor of Biology, Western Reserve University, Cleveland. Cloth. $5.50. Pp. 624, with 257 illustrations. McGraw-Hill Book Company, Inc., 330 W. 42nd St., New York 18; Aldwych House, Aldwych, London, W.C.2, 1950.

This text differs from the usual textbooks on comparative anatomy in that the subject is presented from the viewpoint of levels of being, a concept continually stressed by the late Dr. George Crile with whom the author was associated over a period of many years. The term levels of being as used here implies a stage of development of bodily systems reached by a group as expressed in performance and behavior.

Much of the factual information of this text has been gleaned from contributions of the past, but this has been supplemented by data gathered by the author in field trips and through the observation and dissection of many animals. Dispersed throughout the text are brief anecdotes of those expeditions, illustrating the relation of structure to function. This book is well printed, and the illustrations are excellent. The student of zoology should find it a stimulating text regardless of whether or not he accepts the underlying philosophy.

Post-Graduate Lectures on Orthopedic Diagnosis and Indications. By Arthur Steindler, M.D., F.A.C.S., Professor of Orthopedic Surgery, State University of Iowa, Iowa City, Iowa. Volume I. Section A.: Propedeutics in Orthopedic Diagnosis. Section B.: Congenital Deformities and Disabilities. Cloth. $7.50. Pp. 289, with 290 illustrations. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill.; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; The Ryerson Press, 299 Queen St., W., Toronto 2B, 1950.

These lectures by a master clinician and teacher are presented to the student of orthopedic surgery as a résumé of more than 30 years' experience. The material is in the lecture form given to graduate students. Steindler assumes a personal responsibility for all opinions, as required in the classroom. His responsibility for decision and advice does not permit any ambiguity. The lectures cover diagnosis and indications for treatment. They lead the student through the fundamental sciences to an understanding of the clinical situation, which enables him to build a sound basis for treatment. Numerous case histories bring out specific situations and the answers to the problems presented. The author delves into the history of orthopedic progress in some particular subjects, such as congenital dislocation of the hip and scoliosis. In presenting orthopedic advances of the past, Steindler not only stimulates independent thinking but also checks those "rediscoveries" of old facts that often find their way into the literature.

Steindler presents a guide to the boundary that separates normal from pathological phenomena in the locomotor system. The book gives an accurate evaluation of present knowledge of the anatomy, physiology and pathology of the locomotor system. It assists the student in the choice of rational and proven therapeutic measures. Only when the student has reached the point where he can make a decision on specific therapeutic measures is he prepared to consult textbooks on operative technic.

Volume 1 includes the following subjects: congenital deformities and disabilities due to disturbances of bone growth, the spine and thorax, talipes, defects and malformations of the long bones of the lower extremities, dislocation of the hip and deformities of the upper extremity. Volumes 2, 3 and 4, which are to come, will include paralysis and disability, tuberculosis of the skeletal system, osteomyelitis, arthritis and diseases of muscles, bursae, tendons and fasciae and deficiency and degenerative diseases of the locomotor system.

Emotions and Clinical Medicine. By Stanley Cobb, M.D., Bullard Professor of Neuropathology, Harvard Medical School, Boston. With introduction on semantics and definitions by John R. Reid, Ph.D., Professor of Philosophy, Stanford University, Stanford. Cloth. $3. Pp. 243, with 19 illustrations. W. W. Norton & Company, Inc., 101 Fifth Ave., New York 3, 1950.

This book brings together present knowledge on the emotions as seen by a psychiatrist engaged in clinical research and teaching. It is based in considerable part on comment concerning experimental studies of the physiological and observed emotional responses of laboratory animals. The anatomy of the brain and functions of the hypothalamus are scrutinized in detail with relation to the effects of reactions such as anger, fear, placidity, affection and sexuality in surgically altered laboratory animals. Clinical applications of the observations mentioned are discussed in relation to psychosomatic problems. An excellent introduction discusses semantics and definitions of the word emotion in an attempt to eliminate ambiguous meanings and clarify intercommunication among psychiatrists regarding concepts of emotion. Two excellent chapters are Anorexia Nervosa as a Psychosomatic Problem and Emotions and Social Psychiatry. Short illustrative case reports are supplied. This book deals with subjects which are referred to by the author in his three Salmon lectures in November 1949 and with material derived from his recent experience as Psychiatrist-in-Chief of the Massachusetts General Hospital.

The Diagnosis of Hysteria. By D. W. Abse, M.D., B.Sc., D.P.M., Assistant, Department of Psychiatry, Charing Cross Hospital, London. With foreword by John H. Ewen, F.R.C.P., D.P.M. Cloth. $2. Pp. 112, with 6 illustrations. Williams & Wilkins Company, Mount Royal & Guilford Aves., Baltimore 2, 1950.

This is a short treatise on the dynamic psychological components in hysteria based on Freudian concepts. The author presents a series of cases from his extensive practice in England and India during the period of the recent war, 1942-1946. The author emphasizes that war-induced hysteria tends to be more closely tied in with the present conflictual situations in which the conflict lies close to the surface of consciousness, whereas hysteria in peacetime tends to involve deeper layers of the unconscious and relates to conflictual situations of the first years of life. Comment on the history of the word "hysteria" itself reflects the early explanations of the Greeks, who considered hysteria a wandering of the uterus, the Middle Ages concept that hysteria represented the work or manifestations of evil spirits or of the devil within and early 19th century concepts that hysteria was the result of diseased areas of the nervous system. Early recognition of hysteria is considered of utmost importance in treatment. Iatrogenic suggestion, in repetitive examination to exclude organic causes for the malady, is believed to be a prime cause of its aggravation.

V 14
1951

QUERIES AND MINOR NOTES

ACTH AND CORTISONE IN ALLERGIC CONDITIONS

TO THE EDITOR:—*What is the consensus on the use of cortisone or pituitary adrenocorticotropic hormone (ACTH) in treatment of severe allergies in children or adolescents? Would it be preferable to follow the usual procedure of desensitization and elimination diets until the age of puberty? Which is more effective in severe status asthmaticus in adults, cortisone or pituitary adrenocorticotropic hormone? When the patient's glands are capable of responding normally to stress, how long should these drugs be continued?*

E. R. Bloomquist, M.D., Upper Lake, Calif.

ANSWER.—A week or two of moderate doses of pituitary adrenocorticotropic hormone or cortisone therapy is generally safe in children, adolescents or adults, provided that no contraindicating features exist and that certain precautionary measures are instituted. Such hormone administration would be hazardous in cardiac decompensation, nephritis, diabetes, hypothyroidism, acne, hypercorticoadrenalism and psychoses. Among the precautionary measures to be instituted during such therapy are sodium restriction; observation of weight trend; potassium administration, particularly if there are indications of potassium deficiency (weakness, electrocardiographic changes, potassium determinations); adequate protein intake; examinations for glycosuria or hyperglycemia; tapering off of pituitary adrenocorticotropic hormone doses at conclusion of treatment. It should also be recognized that the disappearance of fever and the presence of leukocytosis during such therapy may mask the onset of acute infectious disease; that these hormones may interfere with the healing of wounds (ulcers, for example) and may, because of the inhibiting effect of localized inflammatory reaction, favor the onset of sepsis.

Pituitary adrenocorticotropic hormone and cortisone are useful in status asthmaticus and in severe allergic episodes that are temporary. In chronic asthma or other chronic allergic conditions it is not at all assured that these hormones can be used with safety continuously. It is almost certain that prolonged administration of these drugs in children or adolescents would lead to serious changes, including growth disturbance. A short course of treatment (several days) in chronic allergy may produce a remission of several weeks or several months, but more probably such a remission will last only a few days. There is apparently much variation in the kind and duration of treatment that gives optimum results and duration of effect. However, a commonly used schedule (for adults) with pituitary adrenocorticotropic hormone is about 80 mg. daily, divided in six hourly doses for three to five days, then 60, 40, 20 and 10 mg. on the following days. With cortisone, the daily dose is usually 200 mg., divided in two doses the first day or two, to be followed by 100 mg. thereafter. For children, the doses may be reduced by about one half. In most instances, pituitary adrenocorticotropic hormone is more effective than cortisone. However, there are instances in which adrenocortical reserve is so deficient that pituitary adrenocorticotropic hormone cannot stimulate cortical secretion. In such cases, cortisone is more effective. Such situations can be ascertained by a number of metabolic studies, but perhaps the simplest is the failure of the eosinophil count to drop significantly four hours after injection of 25 mg. of pituitary adrenocorticotropic hormone or 0.3-0.5 cc. of epinephrine hydrochloride 1:1,000. Poor results with this hormone should also suggest deficient adrenocortical reserve and should call for the administration of cortisone.

Pituitary adrenocorticotropic hormone and cortisone are not substitutes for allergic management, either in adults or children. Every chronic allergic case must be studied carefully from the allergic viewpoint. Where elimination procedures are possible (foods and inhalant substances), these should be instituted and may solve the allergic problem completely. When this is not possible with certain inhalants, desensitization therapy should be followed. Such procedures give much more satisfactory and lasting effects than can be obtained with present hormone therapy. Pituitary adrenocorticotropic hormone and cortisone do not constitute the first line of approach in the treatment of an allergic patient. It should be added that in an acute allergic emergency (immediate serum reaction, anaphylactic shock or acute asthma) these hormones do not work rapidly enough to save the patient's life. Administration of epinephrine, aminophylline, oxygen and similar measures are indicated in such cases. Pituitary adrenocorticotropic hormone and cortisone are useful measures in special allergic situations, but they should not be employed as a short cut to a careful diagnosis and more rational allergic therapy.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

EARLY PARKINSONISM

TO THE EDITOR:—*A 39 year old patient, whom I have known for 20 years, has arrested tuberculosis. She has two children, aged 13 and 2½ years, and has had two miscarriages. For the last few years her friends and I have noticed a fine tremor of her head. She is totally oblivious of this. What should I do to determine the underlying cause?* *M.D., Missouri.*

ANSWER.—Tremor coming on at the age of 35 is suggestive of early parkinsonism, even if the initial tremor is confined to the head. An examination, however, should disclose a lack of associated movements of the arms in walking, possibly some rigidity of the muscles of the extremities and tremulousness of the outspread fingers when the arm is fully extended. Handwriting frequently discloses a hidden tremor, but an electromyogram is more definitive. Slowness in movements almost unnoticed by the patient, a somewhat masklike expression, often noticed by family or friends, some tendency toward monotony of speech and general awkwardness of movements, particularly in walking, are early signs that should be sought for. If none of these signs are found, the most likely consideration next in order would be a hereditary type of tremor, and evidence should be sought for a family history. No efficient treatment is known for this type. The commonest cause of parkinsonism in middle life is a preceding attack of epidemic encephalitis, sometimes difficult to identify. Neurosyphilis, cerebral trauma and manganese poisoning are possible causative agents.

There are many forms of treatment for parkinsonism, including administration of the belladonna type of drug; a number of recently developed medicines are sometimes of value in overcoming the chief symptoms. In general they are of more help in reducing a rigidity of muscle motion than in overcoming a tremor, but drugs like mephenesin are also helpful in tremulous states.

CAVERNOUS HEMANGIOMA

TO THE EDITOR:—*A 42 year old white woman has a large cavernous hemangioma on the upper third of the lower leg. The lesion is 9 by 11 cm., with 13 plaques up to 5 cm. in diameter. There is some constant edema and induration of the proximal half of this leg, with edema extending to the ankle. Would solid carbon dioxide or roentgen rays be indicated for a patient of this age?*

Lloyd H. Murdock, M.D., Zwolle, La.

ANSWER.—In a woman 42 years of age, solid carbon dioxide and roentgen rays probably would not be of material help to a cavernous hemangioma. The injections of sclerosing solutions into such lesions are likewise unsatisfactory. Surgical excision of the area is the most satisfactory method of treatment when it can be employed.

PHENOBARBITAL ADDICTION

To the Editor:—*A young and well qualified accountant for an industrial company is required to meet many people. During the first two months many complaints were received regarding him. It was then discovered that he took phenobarbital daily. He was called to the president's office and told that he was not to take phenobarbital and that he would be given 30 days' trial. His work improved but not to a high standard. He has a position of great responsibility, and, if he were to resume ingestion of phenobarbital, serious errors might result. Is it advisable for the company to continue employing this man?* *M.D., California.*

This inquiry was referred to two authorities, whose respective replies follow.—Ed.

Answer.—The query fails to include information as to the amount of phenobarbital taken daily and whether any alcoholic beverage was combined with the barbiturates. Alcohol and any barbiturate together make a highly "explosive" mixture. The bad reputation that barbiturates are acquiring is due to a failure to take account of ingestion of even relatively small amounts of alcohol. Phenobarbital, taken orally, usually does not give the effects described in the query. Unless large amounts are taken, the drug causes no particular disturbance—if taken alone, especially without alcohol. Many epileptics take 4½ grains (0.27 Gm.) daily and are able to get along well in their work. Ingestion of some barbiturates, e. g., pentobarbital (nembutal®) sodium, may be accompanied by untowards effects, especially if combined with alcohol.

Whether the company should continue to employ this person cannot be stated. If the patient takes nothing but phenobarbital, he might be a good risk, as are many epileptics on a "maintenance" dose of this substance. But from the tone of the inquiry it is suspected that alcohol or some other more rapidly acting barbiturate is complicating the picture. Often the patient who takes daily a dose of 4½ grains of phenobarbital, and nothing else, needs it, even if his physician does not realize it.

Answer.—Present consensus is that addiction to barbiturates, like addiction to alcohol or morphine, is found most commonly in subjects with personality or character disorders. The use of a barbiturate by the person described could be a means that he has developed to cover up his own conscious inadequacy in assuming the responsibility of his position. A 30 day withdrawal is probably not long enough to determine whether he can return to normal and then be capable of carrying out the responsibilities of the position. The barbital compound in question is excreted slowly; withdrawal treatment is likewise a slow procedure, requiring several weeks. Thereafter, as with morphine addiction, rehabilitation and psychotherapy for several months or longer, in an institution for this purpose, is necessary. Only after a three to six month or longer period of withdrawal and successful psychiatric treatment would it be advisable for the man to return to work and for the company to reemploy him.

HEMATURIA

To the Editor:—*After an attack of acute, diffuse glomerulonephritis in a 7 year old child, how long would one expect to find microscopic hematuria in a concentrated specimen, assuming that no further respiratory infections had occurred to complicate the healing period?*

John L. Shirey, M.D., Asheville, N. C.

Answer.—Erythrocytes may be found in the urine for weeks or months after the subsidence of acute glomerulonephritis. However, the number should be small and steadily diminishing. Persistence of even slight microscopic hematuria after six months to one year should lead to a strong suspicion of unhealed or chronic nephritis. Proteinuria usually also persists under these conditions. If there is doubt as to the significance of a very small number of erythrocytes, an Addis count would help. Causes of hematuria unrelated to nephritis should be kept in mind.

CARDIOSPASM AND ACHALASIA

To the Editor:—*Please state the indications for the Heyrovsky operation of esophagogastrostomy. Is the operation indicated in nonorganic spasm of the cardia or lower end of the stomach that is not responsive to any treatment?*

M.D., New York.

Answer.—The modified Heyrovsky technic of esophagogastrostomy is indicated for the surgical treatment of achalasia of the esophagus and severe strictures as a result of cardiospasm, particularly when all conservative measures have failed. Cardiospasm and mild degrees of achalasia can be treated by medical and psychiatric approach. The Heyrovsky operation usually has no place in the treatment of pylorospasm. An excellent review of surgical problems entailed in the treatment of achalasia is found in an article by A. Ochsner and M. De Bakey (*Arch. Surg.* **41**:1146 [Nov.] 1940).

EXPOSURE TO DDT

To the Editor:—*My patient is assigned, at his place of employment, to attaching and detaching cylinders to a supply source of an aerosol containing dichlorodiphenyltrichloroethane (DDT). When he detaches the filled cylinder, the aerosol escapes into the atmosphere and he comes into direct contact with it. He does not wear any type of protective covering. Is there any hazard in the performance of this type of work?* *Martin H. Wendkos, M.D., Philadelphia.*

Answer.—The operation described is likely to provide regular trivial exposures to dichlorodiphenyltrichloroethane with irregular severer exposure. Any workman repeatedly subjected to such exposure, even in small amounts, should be provided with protection, since dichlorodiphenyltrichloroethane accumulates and is stored in fatty tissues. Later in periods of illness leading to fat loss this accumulation may be mobilized, leading to significant damage. In the present instance (it is assumed that the work is stationary) appropriate exhaust ventilation should be installed. In addition, hand protection may be in order, the type depending on the solvent. If dichlorodifluoromethane is the solvent and propeller, canvas gloves may suffice; otherwise rubber gloves should be used, although some solvents may dissolve rubber. The dichlorodifluoromethane gas mentioned is essentially harmless. However, if the solvent is toluene or xylene along with carbon dioxide as the propeller, such solvents, apart from the dichlorodiphenyltrichloroethane, could be harmful on inhalation or cause dermatitis on contact.

INFECTIOUS MONONUCLEOSIS

To the Editor:—*1. What is the treatment for infectious mononucleosis? 2. Is intravenous administration of aureomycin permissible when nausea prevents oral administration?*

D. R. Foster, M.D., Lockney, Texas.

Answer.—1. There is no specific treatment for infectious mononucleosis. Although claims have been made for the efficacy of various antibiotics, critical study has not substantiated these claims. Nevertheless, secondary infection not infrequently occurs with infectious mononucleosis, and penicillin, aureomycin or chloramphenicol may be useful in such instances. Treatment is symptomatic and consists of bed rest during the phase of fever and glandular swelling. Vitamin B deficiency has been reported to accompany the disease, and it may be advisable to supplement the diet accordingly. Frequent rest periods during the time of convalescence appear to speed recovery. Otherwise, the usual analgesics and sedatives are administered to combat symptoms and a nutritious diet is prescribed. Attention to oral hygiene is important, because of the pharyngitis that frequently accompanies the disease.

2. Since nausea with aureomycin is usually due to direct gastrointestinal irritation, intravenous administration of suitably buffered solutions will usually avoid this side effect. However, some instances of nausea have occurred with intravenous administration, suggesting either central action or excretion of the aureomycin into the gastrointestinal tract.

V 14
1951